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TRANSACTIONS

OF THE

Vermont State Medical Society

1897.

PUBLISHED BY THE SOCIETY.

D. C. HAWLEY, M. D., Secretary.

Annual Meeting in 1898 at Brattleboro, Oct. 13th and 14th.

NOTE—Each article published herein stands upon its own merits as the expression of its author's opinion, for which the Society does not hold itself responsible.

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1897–98.

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W. D. HUNTINGTON, Vice-President, Rochester.

D. C. HAWLEY, Secretary, Burlington.

D. G. KEMP, Treasurer, Montpelier.

E. S. ALLBEE, Auditor, Bellows Falls.

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Lyman Rogers, D. C. Hawley, J. N. Jenne.

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H. C. Tinkham, H. H. Lee, C. W. Strobell.

COMMITTEE ON NECROLOGY.

C. W. Peck, D. F. Rugg, E. M. Brown.

ANNIVERSARY CHAIRMAN.

C. F. CAMP.

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TRANSACTIONS

OF THE

EIGHTY-FOURTH ANNUAL MEETING

OF THE

Vermont State Medical Society

HELD IN

St. Albans, October 14th and 15th, 1897.

The Society convened in the City Hall in St. Albans, on Thursday, October 14th, and was called to order at 10.30 A. M. by the President, Dr. F. R. Stoddard of Shelburne.

Prayer was offered by the Rev. C. S. Nutter of St. Albans.

PRAYER.

Oh, God! our Father, we reverently speak Thy name. We desire Thy blessing and benediction every day of our lives. We would acknowledge Thee in all our ways and pray Thee to direct our paths, and especially when we undertake any work of importance, we ask Thy guidance and blessing. We beseech Thee reveal Thy.

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self unto us. Bless this society of physicians in their important business; we pray that they may put their trust in Thee and that Thy benediction and blessing may be upon them in all their work and in their consultation as physicians. We pray that they may realize that Thou art their helper, and we pray that Thou wilt give them great success in their work. We ask Thy blessing upon the members of this association and upon the medical fraternity throughout the world. We thank Thee, O God, for the great progress that has been made of late years; we thank Thee for the increased stock of wisdom Thou hast endowed them with, and we pray more and more that Thy blessing may be upon them and that more and more they may have victory in their work and success in their work, that they may be a blessing to their fellowmen. Direct us, O God, as members of the human family in our relations with one another, and when we come to close this earthly life, may it be one of our realities that we have been of help and service to our fellowmen in our day and generation. May we be able to look over the past with some degree of pleasure and look forward with Christian confidence and hope for the life immortal. We ask these things in the name of Christ, our Redeemer. Amen.

The President—We have with us this morning a gentleman who has left his business to come up here and say a few words of welcome to the Society, as a representative of the City of St. Albans. It gives me pleasure to introduce the mayor of the city, Mr. Fuller C. Smith.

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REMARKS OF MAYOR SMITH.

Mr. President and Gentlemen of the Vermont State Medical Society:

The people of St. Albans, without a dissenting voice feel that some word of welcome should be extended to you who are gathered here in convention as members of the Vermont State Medical Society. Those of you who are more or less acquainted with our front door steps doubtless know that our latch-string is always out, but I may be permitted to say without undue praise that it is not often we have within our gates a body of men so distinguished the State over for ability in one of the grandest professions of the age, and one so progressive in its sphere of activity, as the Doctors of Medicine. It is not every day that St. Albans would welcome a counsel of Doctors,—that often means a last resort for relief in times of physical distress. But we shall endeavor to convince you before you go away that St. Albans is not sick. We welcome you to our streets, to our places of business, to our public buildings, to the homes of our clubs and fraternal organizations, and finally to our own firesides where the warmth of a generous personal welcome will make you feel that we have here a portion of the best there is of Vermont manhood and womanhood. I do not welcome you to the city in the spirit of barter or trade, or to overwhelm you with the sense of our importance as an industrial center, or to impress you with the greatness of our citizens. We make no claims to metropolitan greatness, but in business, in the arts and sciences and in literary and professional pursuits you will find our people abreast with the other people of the State. We do extend to you

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a loyal handshake and greeting because in our simple way we are glad to have you among us for a few days or as long as you care to stay. The good physician is the good Samaritan; his services are not always to be reckoned in dollars and cents. "I was sick and ye ministered unto me," is often the only reward he has in return for his most anxious labor. As a citizen the good doctor is nearly always turned to as the helper of all and we have here in St. Albans members of your profession who possess in the fullest measure the esteem and confidence of all our people. This, in brief, is why we are glad to greet you and we sincerely trust your short stay here will convince you that deep in the hearts of our people is a lasting affection for the members of your profession. I thank you for the opportunity of greeting you in the city of St. Albans.

The President—Mr. Mayor, on behalf of the Society, I sincerely thank you for your cordial welcome, and we will endeavor to show you how well the physicians can appreciate such kindness as you have shown us.

The records of the last meeting were read by the Secretary and approved as read.

The Secretary, Dr. D. C. Hawley, presented his annual report, as follows:

Mr. President and Members of the Vermont State Medical Society:

Another year is passed, another mile-stone is reached and we are met for our eighty-fourth annual meeting.

It is on the whole a fair statement that the Society is in a prosperous condition.

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Our membership is increasing, and we are accomplishing something every year for ourselves and for the public good.

There are a few points, none of them new, to which I wish to call your attention.

Our Transactions are now being published in more attractive and durable form than formerly and at a considerable increase in cost.

Further, many of our members are very careless in regard to the payment of dues.

As a result the treasury is so depleted that nearly every year a part of the cost of publication has to be carried over until the annual meeting and last year we were unable to publish the Transactions at all. This should not be, and the prompt payment of dues by every member would render it unnecessary. I would suggest that our by-laws be amended so that no member may receive the Transactions until his dues are paid for the fiscal year or years for which they are issued. This would necessitate the early payment of dues by all who wish the Transactions, as the Publication Committee could not issue a large number of extra copies, for those who might pay late.

On the subject of Medical Legislation, I will say that I believe every one feels the urgent necessity of a new Medical Practice Act. It is obviously necessary, however, that the Society know and formulate its wants on this subject before asking the Legislature to enact a suitable and acceptable law. A committee should, in my opinion, be appointed to draw up a medical practice act, of equal standard with the best now in force in other States, which should be approved by the Society and then placed

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in the hands of some influential member, for introduction at the next session of the Legislature.

I wish to say a word in regard to increasing our membership, and will reiterate a statement made in one of my former reports, to the effect, that in my opinion the Society ought to be established upon a basis of representation from county or district medical societies. For this purpose there should be in each county, or in each district, a society which is auxilliary to the State Society, the members of which are thereby fellows of the State Society.

I believe that in this way, interest in the Society might be increased and its membership possibly doubled. Further, all papers read in the auxilliary societies would belong to the State Society to be published in the Transactions. I wish very much that a committee might be appointed to investigate this subject, to report upon its workings in other States, and to formulate a plan for bringing about such a change, should it be considered desirable.

Respectfully submitted,

D. C. HAWLEY, Secretary.

Dr. J. A. Howard, of Alburgh Springs, delegate to the Medical Department of the University of Vermont, made the following report:

Mr. President and Gentlemen of the Vermont State Medical Society:

Doctor Fletcher and myself were the delegates appointed to visit the Medical Department of the University of Vermont.

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We were able to be present one day only, at the examination of candidates for the degree of Doctor of Medicine. We spent the day with Professors King, Grinnell and Jenne, taking part, if we wished, in asking questions of the students who came up for their final examination. The questions asked were fair and practical, and of such a nature as to test the candidates' general knowledge of the various subjects under consideration. The majority of the candidates showed themselves to be properly qualified and well trained in the theory and rudiments of medicine.

There were 260 matriculants this year, which I understand to be the largest number of students attending the Medical Department of the University of Vermont since it came into existence. The graduating class numbered 77, of whom 53 passed and received license to practice medicine and surgery.

I am pleased to state that the institution is in a healthy and flourishing condition, and now, as ever before, is in line, in the front rank, with the most advanced medical schools,—requiring four years of study and four courses of lectures before graduation. The standard of requirements for the degree of Doctor of Medicine at the University of Vermont has always been high, and it is a source of gratification to its alumni, patrons and friends everywhere to see the standard of medical qualifications and requirements still further advanced.

I appreciate the courtesy shown me by the medical faculty and students, and wish to tender my thanks for the honor of being your delegate.

Respectfully,

J. ABNER HOWARD, M. D.,

Alburgh Springs, Vermont.

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The Chair announced the following committees:

Committee on Nominations—Drs. A. B. Bisbee, W. H. Vincent, J. B. Wheeler, J. N. Jenne and L. M. Greene.

Committee on Membership—Drs. M. D. Warren, W. S. Nay and R. Sherwood.

A letter from the Secretary of the American Medical Association in regard to the Rush Monument Fund, was read by the Secretary, and on motion of Dr. Geo. Davenport, the President was instructed to appoint a committee of five, to solicit subscriptions for said fund.

The President appointed as such committee Drs. D. C. Hawley, Geo. Davenport, M. R. Crain, J. N. Jenne and E. S. Allbee.

The Chair was instructed to appoint a committee of three to take into consideration the recommendations contained in the Secretary's report.

The Chair named as such committee Drs. F. L. Osgood, H. D. Holton and C. W. Strobell.

Dr. E. S. Allbee of Bellows Falls then made an oral report as a delegate to the American Medical Association, as follows:

I attended the meeting in Philadelphia in June. It was the semi-centennial celebration of the organization. It was a very large meeting; they had some twenty-six hundred persons present. The general essays were very interesting, and very interesting papers were read before the meeting, especially one by Professor W. W. Keen and one by Dr. N. S. Davis—a history of the American Medical Association. He was one of the founders of the society, and there are only four others alive besides himself. That was a very interesting paper. Among the essays I enjoyed the most and spent the most time in listening to,

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were the essays on surgery and general practice. They were papers by able men and the subjects were thorougly discussed, in both sections. It was rather annoying sometimes to a man who wanted to hear a particular paper that was down on his program, to go there expecting to hear it, and then learn that the paper and the man were neither present. I do not know whether there is any way that that could be remedied.

The social side of the convention was well attended to; the button of the Association gave you entrance to all the entertainment provided, which was very extensive and on a large scale. In the evenings there were several receptions at different places. One night the president and I took in five different receptions—I will say there was nothing strong to drink—only in one place was there anything stonger than Apollinaris water.

Dr. Hawley presented the following report as a delegate to the British Medical Association, and the same was accepted and adopted.

Mr. President and Members of the Vermont State Medical Society:

As one of your delegates to the British Medical Association, I have to report that I attended the sixty-fifth annual meeting of the same in Montreal, on August 31 and September 1, 2 and 3. This was the first meeting ever held outside the British Isles. The meeting was attended by about one thousand physicians, between two hundred and fifty and three hundred being from the United States. The general meetings were largely attended, the addresses in medicine, surgery and public medicine being given by Dr. William Osler of Baltimore,

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Mitchell Banks of Liverpool and H. M. Biggs of New York, respectively. One of the ablest and best received efforts of the entire meeting was the address in medicine by Dr. Osler.

The various sections were largely attended and profitable work was done in each. A noticeable feature was the large number of physicians from the United States taking part in the proceedings of all the sections.

While many valuable papers were presented, which were followed by able and profitable discussions, I believe it is true that nothing especially new or noteworthy in the way of scientific research was presented.

A noticeable feature in all papers and discussions was to my mind the consistent conservatism of our confreres from the other side of the Atlantic.

The presence of The Right Honorable Lord Lester, the father of modern antiseptic surgery, added much to the interest of the meeting, and when he addressed the general meeting, he was greeted with long continued and deafening applause.

The entertainments provided for the members and invited guests, in the way of receptions, lawn parties, excursions, etc., were numerous, well attended and appreciated by all.

I will not weary you with a further detailed account of the meeting, but will simply add my thanks to the society for the privilege of attending the meeting as their delegate, and my thorough appreciation of the endless courtesies extended to all from this side the line by our Canadian brethren.

Respectfully submitted,

D. C. HAWLEY.

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Dr. J. A. Howard, then made the following oral report.

One of the features of the meeting of the British Medical Association which impressed me, was that they had a blackboard in the room where they had their addresses in the sections, and the names of the subject and the author were written on the blackboard, so that you could see what was going on. I agree with Dr. Hawley that we had a very pleasant time and a very enjoyable entertainment. It was very enjoyable from both social and medical points of view. I can only say I was sorry that others could not have been with us to enjoy it as we did.

Dr. J. A. Howard then read a paper entitled "Tumors of the Breast," which was discussed by Drs. Geo. Dunsmore, H. R. Wilder, L. H. Hemenway, G. B. Bullard, M. D. Warren and J. H. Hamilton.

Adjourned.

AFTERNOON SESSION.

Called to order at 2:30 o'clock by the President.

Dr. Walter Ela, of Cambridge, Mass., delegate from the Massachusetts Medical Society, presented credentials and was introduced by the President.

Dr. Ela addressed the Society as follows:

Mr. President and Fellows:

It is with great pleasure I am with you to-day especially as a delegate from the Massachusetts Medical Society which sends you a hearty greeting. I was much inter-

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ested in the report of your secretary this morning, particularly what he had to say about district societies. Our Society has eighteen or nineteen of these districts, each of which is a separate organization and has frequent meetings. Yesterday our district, the Middlesex-South, of which I am a member and treasurer, had a meeting and there were some eighty present. At these meetings we make it a rule to have some literary work and we always have a collation which is paid for out of the reversion of the State Society to the district society, there being a certain surplus left from the receipts over the expenditures and that is always divided among the district societies in proportion as members pay their annual dues. I want to speak in commendation of the district societies; a great deal better work is done through them; it is a method I think that can be adopted with profit. I was very glad to hear your secretary speak of it this morning. Our State Society is governed by councilors who are chosen from the district societies. According as the numbers are in each district, so are the number of councilors. Until within two years it was one councilor of the State Society for every eight members, but the number grew to such a size that it became unwieldy and it was increased to one to twelve. That constitutes the governing body which meets once or twice a year, and makes rules, etc., for the State Society. At our meeting yesterday, one of the members suggested that instead of meeting once in four months it would be better to have a meeting once a month. We have made the social feature a very important element and it has succeeded admirably. I thank you for your courteous reception.

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Dr. M. D. Warren of Cabot, presented the Vice-President's address, entitled "Carcinoma of the Breast." An interesting discussion followed which was participated in by Drs. L. M. Bingham, E. M. Pond, C. S. Scofield, G. B. Bullard, D. C. Hawley, J. B. Wheeler, C. W. Strobell, C. F. Camp and H. D. Holton.

A very interesting and valuable paper on "The Modern Management of Diphtheria and Croup Cases," by Augustus Caillé, M. D. of New York, was read by the Secretary, and was discussed by Drs. H. A. Crandall, C. S. Caverly, H. R. Wilder, J. P. Newton, W. S. Nay and C. E. Allen.

Dr. W. E. Lazelle of Plainfield, presented a paper entitled "The Uterine Curette in the Country." Discussion was participated in by Drs. E. M. Pond, C. W. Strobell, L. M. Bingham, E. A. Bates and G. B. Bullard.

Adjourned.

EVENING SESSION.

The Society met at 8.15 o'clock with Vice-President Dr. M. D. Warren, in the chair.

The President, Dr. F. R. Stoddard, presented his annual address, entitled "Electro Therapeutics." The subject was discussed by Drs. E. M. Brown, M. R. Crain, H. D. Holton, H. R. Wilder and Wm. T. Slayton.

At the close of the discussion, the Society adjourned to the American House, where the annual banquet was served. The banquet was tendered by the St. Albans Board of Trade. The post-prandial exercises were in charge of Dr. W. S. Nay, Anniversary Chairman.

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SECOND DAY.

FRIDAY, OCTOBER 15, 1897.

FORENOON SESSION.

Met at 9.10 o clock.

The Nominating Committee reported the following officers and delegates for the ensuing year, and they were duly elected by ballot:

OFFICERS.

President,	LYMAN ROGERS, Bennington.
Vice-President,	W. D. HUNTINGTON, Rochester.
Secretary,	D. C. HAWLEY, Burlington.
Treasurer,	D. G. KEMP, Montpelier.
Auditor,	E. S. ALLBEE, Bellows Falls.

EXECUTIVE COMMITTEE.

Lyman Rogers, D. C. Hawley, J. N. Jenne.

PUBLICATION COMMITTEE.

D. C. Hawley, J. B. Wheeler, M. C. Twitchell.

LICENSE CENSORS.

H. C. Tinkham, H. H. Lee, C. W. Strobell.

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COMMITTEE ON NECROLOGY.

C. W. Peck, D. F. Rugg, E. M. Brown.

ANNIVERSARY CHAIRMAN.

C. F. Camp.

DELEGATES.

Univ. of Vt. Med. Dept.—L. M. Greene, D. F. Rugg.
Dartmouth Medical College—A. B. Bisbee, H. A. Crandall.
N. H. Medical Society—J. M. Allen, H. H. Lee.
Maine Medical Association—J. H. Linsley, E. H. Ross.
Mass. Medical Society—H. D. Holton, J. N. Jenne.
R. I. Medical Society—C. F. Camp, J. W. Jackson.
Conn. Medical Society—A. C. Bailey, M. D. Warren.
N. Y. Medical Association—C. E. Chandler, E. M. Pond.
N. Y. Medical Society—W. H. Vincent, C. S. Caverly.
Northern N. Y. Medical Association—J. N. Jenne, C. E. Allen.
White Mountain Medical Association—O. W. Sherwin.
White River Valley Medical Association—D. G. Kemp.
Conn. River Valley Medical Association—L. M. Greene.
American Medical Association—J. B. Wheeler, L. M. Greene, J. H. Jackson, Henry Janes, C. S. Caverly, H. D. Holton, E. F. Upham, W. H. Vincent, E. R. Campbell, L. M. Bingham, D. C. Hawley and F. R. Stoddard.

Voted to hold the next meeting in Brattleboro.

On motion of Dr. C. S. Caverly, it was unanimously voted that the By-Laws be altered by the addition of the following article, to be known as Art. IX of the By-Laws:

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"Art. IX. No author shall consume more than twenty minutes in reading or presenting a paper, and no one shall speak in the discussion of a paper more than five minutes, without the unanimous consent of the members present."

Dr. C. F. Camp of Barre offered the following resolutions:

Resolved, "That Art. II of the Constitution be amended by adding after the words 'a committee on membership of three members,' the words, 'a committee on legislation of three members.'"

Resolved, "That Art. I of the By-Laws be amended by the addition of Sec. 12, which shall read as follows:

Sec. 12. It shall be the duty of the Committee on Legislation to receive and examine all resolutions or proposed laws or acts pertaining to medical legislation which may come up at any meeting, and to report on the same at the meeting then in session; also to have charge of all legislative business of the Society which may properly come before the Legislature for enactment, as the Society may direct."

The committee appointed yesterday to report upon recommendations contained in the Secretary's report, presented the following:

Resolved, That Art. II of the By-Laws be amended by the addition of Sec. 4, which shall read as follows: Art. II, Sec. 4 (of By-Laws) "No member shall receive the Transactions unless his dues are paid for the fiscal year or years for which they are issued."

Resolved, "That a committee of three be appointed by the Chair to formulate a Medical Practice Act, to be presented to the next session of the Legislature for enactment."

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Resolved, "That a committee of three be appointed by the Chair to prepare an amendment to the Constitution for the re-establishment of the Society upon a basis of membership through County or District Medical Societies, and further *Resolved*, "That notice is hereby given that such an amendment will be presented for action at the next annual meeting."

On motion, the report was accepted, and the resolutions were adopted.

Accordingly the Chair announced as the Committee on Legislation, Drs. Wm. N. Platt, A. B. Bisbee and W. S. Nay, and as the Committee on re-establishment of the Society, Drs. F. R. Stoddard, J. N. Jenne and J. Sutcliffe Hill.

Dr. M. R. Crain reported for the Committee on Legislation, appointed last year, as follows:

REPORT OF THE LEGISLATIVE COMMITTEE.

Mr. President and Gentlemen of the Vermont State Medical Society:

It seemed to us last fall that the time was most opportune to secure better legislation for the regulation of the practice of medicine in our State, as we had secured the promises of coöperation on the part of the Vermont State Homœopathic Society, and there were a larger number of physicians in the Senate than there had been for several years. But we were doomed to disappointment.

It was unfortunate that there were two bills introduced:

The first one introduced by Dr. Manchester, taking the matter out of the medical profession and making it a political one.

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The other, the one submitted to this Society at its annual meeting, October, 1896.

At the hearing before the Joint Committee on Public Health, the Homœopaths, Eclectics, Osteopaths and Spiritualists opposed both bills or any other legislation regulating the practice of medicine.

In the regular profession and even among the members of the Legislative Committee of this Society, there was a difference of opinion as to which course to pursue, to support the bill submitted to this Society at its last annual meeting, or support the bill introduced by Dr. Manchester taking the matter out of the hands of the medical profession and putting it into politics.

The Osteopaths in particular, made a very strong fight against *all* legislation regulating the practice of medicine, —they packed the committee room with their clients and had such able and influential advocates as Ex-Gov. Dillingham.

The bill reported back to the Senate by the Joint Committee on Public Health, of which Dr. Manchester was a member, was substantially the one introduced by Dr. Manchester, taking the matter out of the medical profession and placing it in politics.

The bill passed the Senate but was killed in the House. We can see the predicament we would be in if this matter was removed from the medical profession to politics when we recall that one of the members of the Joint Committee on Public Health was "Healer" Bradley Newell.

Respectfully submitted,

M. R. CRAIN,

Chairman Legislative Committee.

The report was accepted and ordered placed on file.

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The following report of the Committee on Necrology was presented :

To the Vermont State Medical Society :

Your Committee has the good fortune to find only two deaths from the members of the Society to report for the year 1897 : Dr. G. E. Lane of Ludlow and Dr. B. W. Davis of Montgomery.

Dr. W. N. Bryant of Ludlow has kindly offered to prepare a suitable paper on the life and death of Dr. Lane, and Dr. J. H. Hamilton of Richford is to render a like service on the death of Dr. B. W. Davis of Montgomery.

Respectfully submitted,

C. W. PECK,

Chairman Committee on Necrology.

The Treasurer presented his annual report, which was accepted.

Mr. President and Gentlemen :

The delegates to Dartmouth Medical College reported as follows :

The delegates appointed to attend the final examination of the Medical Department of Dartmouth College beg leave to report as follows :

That they did attend the examinations held in November, 1896, and June, 1897. That in November 49 candidates came up for graduation, of whom 41 were found worthy to receive the Degree of Doctor of Medicine. In June 10 came before us, and of these 9 received the degree for which they were striving. In

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June the Medical Department celebrated its one hundredth anniversary, which was noticed with appropriate exercises; the chief feature of which was an address by Dr. Conner, who holds the chair of surgery in the college.

The college has added one year to its course of study, thus increasing its usefulness and placing it on the same level with those other colleges throughout the country, who are endeavoring to raise the standard of their teaching, and the proficiency of their graduates.

Your delegates were received with the greatest courtesy and were afforded every opportunity to familiarize themselves with the workings of the college.

Respectfully submitted,

F. THOMAS KIDDER,
J. S. HILL.

Dr. H. D. Holton presented the address in medicine, and Dr. J. H. Woodward a paper on "Tumor of the Brain." The latter was discussed by Drs. Lyman Rogers and E. M. Pond.

Dr. William Mabon of Ogdensburgh, N. Y., presented a highly interesting paper on "Paranoia."

On motion of Dr. D. C. Hawley a vote of thanks was tendered Dr. Mabon, and he was elected an honorary member of the society.

Adjourned.

AFTERNOON SESSION.

SECOND DAY.

Met at 1:45 o'clock.

Dr. C. E. Allen of Swanton read a paper on "Infantile Scorbutus," which was discussed by Dr. J. B. Wheeler.

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"Public Health" was the subject of a paper by Dr. E. A. Bates of Highgate. This paper was discussed by Dr. H. R. Wilder of Swanton.

Dr. J. B. Wheeler of Burlington presented a paper on "Cancer of the Uterus," which was discussed by Drs. E. M. Pond and William N. Platt.

An obituary of Dr. B. W. Davis, late of Montgomery, was presented by Dr. J. H. Hamilton.

The following papers were read by title only, "The Significance of Post Climacteric Uterine Hemorrhages," by Dr. F. A. L. Lockhart of Montreal, "Osteitis Deformans," by Dr. F. T. Kidder of Woodstock, and "Higher Medical Education," by Dr. William T. Slayton of Hyde Park.

An obituary of Dr. George E. Lane of Ludlow, was presented by Dr. W. N. Bryant of the same town, which was also read by title only.

The following physicians were elected to membership during the meeting:

A. Davidson, St. Albans,
W. S. Manuel, St. Albans.
G. C. Berkley, St. Albans.
J. T. Lysten, Rutland.
C. H. Maston, Alburgh.
C. S. Scofield, Richford.
C. N. Sutner, Richford.
F. A. Petty, Fairfax.
V. B. Herrick, Montgomery.
J. H. Bean, Sheldon,
S. C. Start, Bakersfield.
A. A. Skeels, Highgate Center.

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F. W. Baylies, Burlington.
H. Edwin Lewis, Burlington.
E. H. Noyes, N. Haverhill, N. H.
A. A. Claflin, St. Albans, Reinstated.
J. P. Newton, Benson, Reinstated.
E. A. Bates, Highgate, Reinstated.
R. E. Welch, Franklin, Reinstated.

The Executive Committee reported the following programme for 1898:

Papers by L. H. Gillett, A. I. Miller, Wm. N. Platt, F. C. Liddle, L. C. Holcombe, O. D. Greene, W. J. Aldrich, W. N. Bryant, Geo. Dunsmore, C. E. Chandler, S. E. Lawton, W. W. Townsend, C. S. Pratt, O. W. Peck, D. W. Hazelton, H. C. Tinkham, W. L. Havens, W. D. Huntington, S. W. Paige and E. M. Pond.

ATTENDANCE.

Geo. Dunsmore, St. Albans.
H. D. Belden, St. Albans.
Ralph Sherwood, St. Albans
F. D. Robertson, St. Albans.
J. N. Jenne, St. Albans.
S. W. Paige, St. Albans.
W. S. Manuel, St. Albans.
G. C. Berkley, St. Albans.
W. B. Hyde, St. Albans.
G. B. Hyde, St. Albans.
A. Davidson, St. Albans.
A. A. Claflin, St. Albans.
J. P. Newton, Benson.
Geo. B. Hulburd, Jericho.

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S. C. Start, Bakersfield.
W. E. Lazelle, Plainfield.
G. B. Bullard, St. Johnsbury.
Hall Staples, Grafton.
George Davenport, East Randolph.
L. H. Hemenway, Manchester.
M. D. Warren, Cabot.
W. S. Nay, Underhill.
J. A. Howard, Alburgh Springs.
C. H. Masten, Alburgh Springs.
W. H. Vincent, Orwell.
F. L. Osgood, Townshend.
L. S. Tesson, Fort Ethan Allen.
L. H. Gillett, Wilmington.
W. G. Church, Morrisville.
C. F. Camp, Barre.
J. W. Jackson, Barre.
Lyman Rogers, Bennington.
D. G. Kemp, Montpelier.
C. N. Hunt, Montpelier.
C. E. Chandler, Montpelier.
M. L. McGuire, Montpelier.
A. B. Bisbee, Montpelier.
C. F. Hawley, Fairfax.
F. W. Petty, Fairfax.
H. R. Wilder, Swanton.
C. E. Allen, Swanton.
J. H. Hamilton, Richford.
C. S. Scofield, Richford.
R. M. Pelton, Richford.
L. M. Greene, Bethel.
W. D. Huntington, Rochester.

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F. R. Stoddard, Shelburne.
J. H. Bean, Sheldon.
E. M. Brown, Sheldon.
E. A. Bates, Highgate.
Wm. R. Hutchinson, Enosburgh Falls.
V. B. Herrick, Montgomery.
Wm. Lindsay, Georgia.
Wm. T. Slayton, Hyde Park.
Fred C. Page, Morrisville.
G. B. Woodhull, North Bennington.
C. S. Caverly, Rutland.
C. W. Strobell, Rutland.
E. M. Pond, Rutland.
M. R. Crain, Rutland.
H. D. Holton, Brattleboro.
O. C. Baker, Brandon.
S. E. Darling, Hardwick.
R. E. Welch, Franklin.
L. M. Bingham, Burlington.
H. A. Crandall, Burlington.
P. E. McSweeney, Burlington.
J. B. Wheeler, Burlington.
J. H. Linsley, Burlington.
G. C. Briggs, Burlington.
D. C. Hawley, Burlington.
Joel Allen, Burlington.
A. P. Grinnell, Burlington.
F. E. Clark, Burlington.
H. Edwin Lewis, Burlington.
W. W. Hutchinson, Enosburgh.
Chas. P. Newton, Underhill.
L. C. Holcombe, Milton.

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F. C. Phelps, Vergennes.
F. L. Brigham, Pittsfield.
E. B. Watson, Williamstown.
O. W. Peck, Winooski.
J. D. Tanner, Winooski.
Wm. N. Platt, Shoreham.
E. H. Martin, Middlebury.
F. T. Kidder, Woodstock.
E. H. Bushnell, Jeffersonville.
F. C. Liddle, Dorset.
Wm. Mabon, Ogdensburg, N. Y.
Walter Ela (Delegate), Cambridge, Mass.

Total attendance, 90.

Adjourned.

D. C. HAWLEY, M. D.,
Secretary.

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Electro-Therapeutics.

By F. R. Stoddard, M. D., Shelburne.

Electro-therapeutics defined in a biological sense, is, that electric energy applied to the vital energy of living organisms undergoes a transformation into the energies characteristic of such organisms; the energy termed vital is modified by the energy known as electrical; it is a question of electrical energy versus biological energy. Of the vital energy we may say that its beginnings are life; its normal progress is health; its perversions are disease; its cessation is death.

At some point in this gradient, either as a somatic aggregate or as a cellular unit, the applied electric energy of electro-therapeutics is transformed into some form of vital energy—namely, transformed into some function of protoplasm and its modifications.

Electro-therapeutics is the transformation (by the law of conservation of energies) of electric energy into energy peculiar to vital cells.

Electricity must not be regarded as an entity, like a drug, but as having a variety of "properties" such as, electrolysis, cataphoresis, contraction of protoplasm, etc., each of which properties may be employed singly or combined to combat given morbid conditions or diseases.

To avoid confusion, the familiar medical classification of galvanic, faradic and franklinic currents, their proper-

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ties useful in disease are: (A) Physical: (1) heat, (2) light, (3) electromagnetic, (4) inductive, (5) electrolytic, (6) cataphoric. (B.) Physiological: (7) contraction of protoplasm, (8) stimulation of nerve and muscle, (9) fatigue of nerve and muscle, (anasthetic and analgetic effects), (10) electrotonus, (11) nutritional effects.

In this enumeration the physical properties of the current are mainly those of the continuous or galvanic current, while the physiological properties, with the exception of electrotonus, are common to both galvanic, faradic and franklinic currents, mainly by reason of interruptions in flow of current.

I. Heat is employed to render platinum wires, loops and knives incandescent, and enters in this sense into electro-surgery.

Heat produced by the passage of a medical electric current through the body is inappreciable.

II. Light also is used mainly as an indirect effect to illuminate cavities of the body, and to transillumine tissues. By means of transillumination important aid in diagnosis is rendered, for foreign bodies, necrosed tissue and pus do not transillumine, but appear as dark areas in the midst of the beautiful, waxen, rosy glow of the transillumined tissue. Pus in the antrum of Highmare may readily be detected, as well as necrosis and pus at the roots of teeth.

Prof. Morton says he has frequently transillumined the lower abdomen by introducing a specially constructed electric lamp into the vagina in the attempt to aid in diagnosis and location of pus and tumors. Dr. Einhorn of New York ascertains the size of the stomach and its loca-

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tion, as well as the probable presence of cancer and ulcers, by means of transillumination of this cavity.

III. Magnetism is not used to any extent in medicine.

IV. Electrolysis is the most important property of the galvanic or constant current. It takes place only at the expense of the tissue, which undergoes a chemical decomposition whether the current-strength be great or little. If the current strength be sufficient to cause an actual and final disruption of the atoms of molecules, which, as oxygen and hydrogen, and various subsidiary chemical products—acids and alkalies—collect at the electrodes (generally metallic needles), we have an instance of visible, polar, or surgical electrolysis. If the molecules are not disrupted, we have the ordinary medical electrolysis.

As an electrolyte, the human body may be considered as a 2 per cent solution of common salt, and since current-conduction is due to the salts of the body held in solution and constituting, though in small amount, a most essential element of tissue, it is plain, aside from laboratory and clinical experience, that from a physical point of view alone electrolysis profoundly alters tissue constituents and structure. Even a few milliamperes of current conducted electrolytically by the solutions of inorganic salts, decomposing and diminishing them in amount, may produce profound effects, for the function of the tissue depends upon its physical integrity, and it is its physical integrity which suffers by the passage of the current. This action probably explains the effect of electricity in setting up a retrograde change in the growth of many tumors, especially fibroids in their early stages, and is also one reason for the absorption of inflammatory exudates wherever their locality. In

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connection with these views it must be always borne in mind that the modern view of electrolysis holds that its activity is existent at every part of the circuit and not alone at the polar region.

Prof. Morton says he regards the property of electrolysis as one that must be employed with great discrimination and caution.

Illustration experiment of Prof. G. Weiss, who submitted one leg of a frog to a few milliamperes of current for several minutes, then placed the frog back in the aquarium. At the end of a week the frog's legs were tested to determine their relative excitability. The leg not submitted to the currents was from ten to twenty times more easily excited than the electrolyzed leg.

This latter leg was amputated and upon microscopic examination it was revealed that marked structural changes had been produced in the muscle-fibres. Experiments of this nature demonstrate that the continuous current reduces nerve and muscle excitability by setting up structural changes.

WHEN USED.

In spinal-cord diseases, in neuritis, and in all cases where regeneration of nerve and muscle tissue, or, indeed, of any tissue, or the resumption of functional integrity, is to be promoted. Prof. Morton says he believes that the galvanic current, as commonly employed (that is strong currents), retards recovery. Certain it is that there is a growing feeling in favor of the use of mild (one to five milliamperes) galvanic currents, in the class of cases alluded to, where reparation and not retrogression is desired.

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On the other hand, retardation of the excitability and of the growth of tissue and reabsorption of exudates may be desired. This, Prof. Morton says, he believes to be the practical function of the galvanic electrolytic current, and especially of the negative pole of this current. The negative pole is the right pole, and the best treatment to apply in all cases of chronic inflammation, so-called, where from traumatism, infectious processes, rheumatism, and in chronic inflammation in the pelvis, within organs, etc., wherever new formed fibrous tissue is found, the negative pole, and it alone, exerts a reabsorptive action.

Examples :—Contents of female pelvis rigid become softened and movable ; chronic joints fixed by fibrous ankylosis resume their flexibility by the use of the negative pole. Always use negative pole. Place positive pole as indifferent or dispersing electrode.

Cataphoresis means the movement of fluids in tissues by the direct action of the constant current; this movement is, in general, from the positive and toward the negative pole. When fluid to be moved is a solution of some medicine usually applied to the positive pole, and forming electrolytic continuity with the skin, mucous membrane, or deeper tissues, the procedure is called cataphoric medication.

Cataphoresis, the movement of the fluids of tissues, is an inevitable associate with electrolysis. By it fluids accumulate at the region of the negative pole and abandon the positive pole. Thus the negative pole is said to be the "wet" and the positive pole the "dry" pole ; the action at the negative is "liquefying," at the positive "desiccating." The positive pole is used to combat

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hemorrhagic conditions, the negative to promote retrogression and absorption.

It is most marked by use of bare electrodes, needles and sounds, but not absent when sponge electrodes are used.

Cataphoric medication has opened out a vast and practical field of new work in electro-therapeutics. The medicine to be introduced through the skin of a patient may be in a solution in a "galvanic bath;" the solution may be placed within the uterine, vaginal, rectal, buccal, or other cavity within which at the same time is placed the positive electrode; it may be injected into the tissues and diffused by a positive pole, needle or canula; it may be simply placed on a piece of blotting paper, with a flat carbon electrode or positive polarity resting upon it; in all instances, with a moderate flow of current, within a few minutes medicines like iodide of potassium, iron, quinine, strychnine, mercury, and many others may be detected upon examination, in the urine. Practical applications of this principle are the use of mercury in syphilis, of local remedies like iodine in goitre, and other diseases, of lithia salts in rheumatism. The most practical of all is the local anæsthesia by means of hydrochlorate of cocaine. There are few minor operations in surgery that cannot be done under electro-cocaine local anæsthesia.

CATAPHORIC MEDICATION FROM SOLUBLE ELECTRODES; "METALLIC ELECTROLYSIS."

The principle of electric diffusion, combined with the chemical decomposition of the electrode and of tissue with which it is in contact, has furnished to us, only most recently, a new method of procedure, than which there are

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few more practical, more efficacious, and therefore more important, in the entire range of electro-therapeutics.

The procedure was inaugurated by Dr. Gautier, of Paris, and is commonly termed metallic electrolysis. Its essential feature is an electrode, as for instance, a needle, a sound, a probe, a bulb, or any other, made out of metal—say copper or zinc—which is vigorously attacked and oxidized by the current at the positive pole, and, what is more important, the secondary salt formed, an oxychloride of the metal, is driven or diffused by the action of the current into the tissue. In this case, unlike topical application of washes, sprays, or injections, the medicine is not alone applied to a diseased surface or tissue but is also driven into it and may there act as a microbicide or denutrient.

Cataphoric medication is invaluable in the treatment of the following diseased conditions: Trachoma, with one or two milliamperes of current a copper bulb electrode of positive polarity is slowly passed over the conjunctive surfaces; in a few days the sago-like granulations soften and with successive treatments disappear together with the other distressing symptoms.

Prof. Morton reports that he has cured chronic nasal catarrh and post-nasal catarrh within three to six weeks.

The parts are first cocainized with a spray of cocaine, then a bulb of copper fitted to a proper handle is passed by the mouth to the post-nasal areas until as much of the tissue as possible is saturated with the green oxychloride of copper dissolved by the action of the current of the electrode; a current-strength of from five to eight milliamperes is employed, the negative pole being placed on the back of the patient's neck.

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Copper sounds and probes properly protected may be used in the same manner to treat anterior nasal catarrh.

Useful in the treatment of dermoid cysts, follicular tonsilitis, diphtheritic patches, vascular tumors, naevi, lupus, epitheliomata, pus sinuses, tubercular deposits, sycosis parasitica, parasitic diseases, etc.

The simplicity of this method is readily realized, particularly in the use of copper and zinc needles, and with a galvanic battery, a rheostat and a milliampere-meter in hand, the practitioner may make his own electrodes out of copper wire by the aid of file and emery-paper, or bend his wire into loops for probes or sounds.

The instruments used by Prof. Morton may be obtained of the Galvano-Faradic Co., 300 Fourth Avenue, N. Y. City.

ELECTROTONUS.

This property, of nerve (and of muscle), of having its excitability lowered at the positive and heightened at the negative pole, is one of the fundamental dicta of galvanic current treatment. It has become classical to treat the pain of a neuralgia by the positive pole. If the nerve is superficial, the advice is good; if it is deep, the electro-tonic effect is not easily obtained. *Excitation and fatigue of nerve and muscle, mainly faradization.* No electro-therapeutic proceddure is better established than the use of the faradic current. As now used it produces two effects:

(a) Muscular contraction.

(b) Sedation and numbness to pain (fine wire coil). Prof. Morton adds a third—namely:

(c) A fatigue effect upon nerve and muscle. Example.

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In some cases of orthopaedic deformity, where there is a paralysis of one group of muscles and a spastic condition of another or opposing group, paralyze the spastic group for a time, by the excessive use of the faradic current.

If faradization could exhaust nerve and muscle in this manner, in the numerous cases where it is used to treat paralysis, it would easily exhaust the enfeebled muscle.

Prof. Morton began the use of a milder current, and to use it intermittently in order to afford the muscle time to rest and reinforce itself.

The nutrition of muscle is furnished by its blood-supply; moderate contractions increase the intramuscular circulation, while severe contractions diminish it; the faradic current is a sort of electric gymnastics—its action resembles ordinary exercise; moderate exercise of the muscle by a faradic current flowing in slow rhythm produces physiological hypertrophy or growth of the muscle; prolonged tetanization of muscle by the faradic current flowing in rapid vibration produces fatigue and atrophy of the muscle.

The rhythm adapted to produce the best result in the growth of the muscle is one which affords about the same time for the excitation and for the period of rest; this is about thirty faradic impulses per minute, thus allowing time for each excited contraction to subside, and for the muscle to recuperate between contractions, as is the case in ordinary exercise.

In conclusion of electro-therapeutics, of the galvanic current, it may be said:

(1) That a strong current depresses nutrition of tissues, and produces structural changes leading to physiological atrophy (twenty to one hundred milliamperes).

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(2) That mild currents stimulate nuitrition and produce physiological hypertrophy (1 to 8 milliamperes).

(3) That mild galvanic currents, pulsating or alternating, produce similar effects to mild continuous currents.

(4) That the negative pole is especially indicated in that large class of cases termed chronic inflammation where newly formed fibrous tissue, as exudate, occurs.

(5) That the positive pole is rarely indicated, and, if at all, upon the basis of an electrotonic effect to produce sedation of neuralgic pain in superficial nerves.

Of the faradic current it may be concluded:

(1) That its main use is to tetanize muscle and to cause sedation of pain.

(2) That the tetanizing current as now employed to treat paralyzed muscles is injurious, since it enfeebles the muscle and causes atrophic structural changes.

(3) That to strengthen or properly exercise a paralyzed muscle, a slow rhythm of the faradic current—about 30 waves per minute—should be used.

(4) That in some spastic conditions of muscles (due to paralysis of an opposing group), the strong tetanizing current may be used to over-stimulate and thus fatigue the muscle.

Of the franklinic or statical electricity it may be said:

(1) That it evokes the usual nerve and muscle reactions.

(2) It affords a most convenient means of stimulating the peripheral distribution of the nerves in the skin, producing counter-irritation, reflex and other afferent impression effects.

(3) It has local perturbatory action (spark).

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(4) It produces profound alterations in the metabolism of the individual, increasing the natural waste products and diminishing the toxic or by-products. For this reason it is specifically indicated in cases of malnutrition, whether local or general.

DISCUSSION.

Dr. M. R. Crain: I do not wish to be considered as criticising the excellent paper of the president; the one fault I find with it is that which pertains to a majority of works on electro-therapeutics, considering the subject in a way that mystifies the general practitioner in regard to electricity. They talk about the different kinds of electricity, about the galvanic current and the Faradic and the static current. You might as well talk about three kinds of heat. There is only one form of electricity though we have different effects. There is an inherent difference in the electrical force, but it is in regard to the voltage and the rapidity of the interruptions. The best form to use electricity to stimulate muscular contraction is with the interrupted galvanic current. There is a danger in that current of using it too strong because you get a larger quantity of electricity with the galvanic current than you do with the Faradic or the static; the voltage is so much higher. With the Faradic current the voltage is very high but the quantity of electricity used is very small—so small in fact that we never think of using a meter of any kind to measure it. The same is true, only to a greater extent, with the static current. With the Faradic current you overtax the muscles by the rapidity of the vibrations. When you overtax

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the muscles with the galvanic current it is like a horse drawing a load and getting tired by the work. The other is like the race horse, it is not the amount he has to carry but the rapidity of his motion. The same is true with the static electricity; you can use the static machine very well and control its application by connecting the poles as with the Faradic or galvanic. With the galvanic current you use a larger quantity but the voltage or the head (for you may compare it with a head of water) is very low comparatively speaking. In the ordinary galvanic battery you would have a voltage of from 20 to 60 volts and with a battery of that strength you could use—even with a voltage of not more than 30—you could use a current as small as a milliampere by using the small electrode and moistening the skin with plain cold water; or you can use very large electrodes and hot salt and water and give from 150 to 200 milliamperes of electricity with only that voltage. You can also use the ordinary electric light current and get a voltage of about 110. I think I was one of the first in the country, as far back as 1886, to use it for medical purposes, and I wrote an article to the *Journal of Nervous and Mental Diseases* on that subject.

With the Faradic current the voltage is very high and higher than the ordinary current—higher than the arc light, which has probably a voltage of 1,500—high enough, if you had electricity enough, to kill a person. The most wonderful advance in the use of electricity in late years is not in the treatment of disease but its use in producing the X-ray for diagnosis. In that you can use either the Faradic current or the static, the only requirements are a very high voltage and rapid, steady interruptions. I have used it considerably—the Faradic and Ruhmkorff coil that gives a ten-

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inch spark. It is more satisfactory than a static machine because it is more sure to work and the current is a little steadier; you can see better with a fluoroscope and it gives better photographs or skiagraphs.

In regard to electrolysis there are a great many things we can do very nicely—but there are many others that we do with electricity which can be done better and in a shorter time with other means. I think most men who make a specialty of electricity run a hobby, and they do a great many things with electricity that they could do in less time and better with other means. In electrolysis the negative pole is used for its electrolytic effects and the positive for stopping of hemorrhage and such things as that.

Dr. G. B. Bullard: I do not know how it may be with others of my profession, but to me electricity as a therapeutic agent is "in the air." I do not know how to use it as I do tincture of nux-vomica, or gentian, or dandelion or quinine. I have no idea what dose I am giving or what amount I ought to give. How will you measure your dose or quantity? A short time ago Professor Hamilton of Princeton said to the Electro-Therapeutic Society of Philadelphia that there was no such thing as an electric meter; that electricity had not yet been measured and there was no method of measuring volts or amperes as we measure water. While I dislike to show my ignorance, I have been trying to learn in regard to the static and galvanic and Faradic currents. I have listened just now to a thorough electrician—Dr. Crain of Rutland—but I regret to say I am just as much in the dark now as when I came and sat down here this evening.

Dr. Holton: When we can have these papers to read and study over of course we shall know more than we can

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learn by simply listening to them. Electricity is a subject that requires careful consideration. I was much interested in the remarks of my friend Brown, when he spoke of the great transformation that is to be wrought and the halcyon days that are coming from the streams in Vermont and the electrical currents. You must remember that in order to have a good light or good power you must have a steady current and that must depend upon volumes of water—it must be a steady volume all the time, and that would be impossible with our streams in Vermont. Even the Connecticut river does not produce it. Our streams run very low part of the year and they are not steady in their flow. The trouble is that where they have water power for their electricity there is no steadiness.

Dr. H. R. Wilder: We have at Swanton an electrical power that vies with any other power in the State, steam or water. We have the most steady lights and the finest system of electricity and it is all from water power. I do not want to have any of you think that Swanton is so far behind, because we have electricity by water power. We are going to cook our victuals and warm our houses and transport our vehicles by electricity, generated by water power.

Dr. W. T. Slayton: I heat my office by electricity and the time is coming when we shall use it generally for such purposes.

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Tumors of the Breast.

THEIR MODERN DIAGNOSIS AND TREATMENT.

By J. A. Howard, M. D., Alburgh Springs.

Mr. President and Gentlemen of the Vermont State Medical Society:

I esteem it a privilege and a great advantage to be a member of our honorable society, to be able to meet with you each year and listen to the reading of the excellent papers upon all medical and surgical subjects that have been so ably presented and intelligently discussed. I am sure the history of this society in the past presents ample surety and promise of the same good work being continued in the future, and that the membership will steadily increase until all good and true physicians, who have the best interest of their patients, the welfare of the public at heart, and wish to keep up with medical progress, to be abreast of the times, in touch with their fellow practitioners, and to stand well with the community where they chance to practice medicine or surgery, will unite with the Vermont State Medical Society. I wish that I were able to impress upon all regular physicians in good standing that it is as much a part of their duty,

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as it is to visit their patients, to identify themselves actively with the various medical societies, both State and National, as far as they are able to do so. I have no hesitation in declaring that you will not find it a losing investment, but money and time well spent, the dividends large and the result satisfactory.

Were I to discuss all of the diseases of the breast, in the manner in which they should be treated, this paper would take too much valuable time of this society. I will bring before you for your consideration and discussion, Tumors of the Breast, giving their modern diagnosis and treatment and showing how they were considered and treated about fifty or seventy-five years ago, which will show how we of the regular profession have not made the advance which the more successful treatment of the disease demands of us. Tumors form one of the most interesting subjects in the whole range of surgical topics; when we think how often the patient's knowledge of his chances for life or death hinges upon our diagnosis of a tumor whether or not it is malignant or benign, we cannot fail rightly to regard its importance as second to no other. Were we to examine the records of the civil hospitals in this and other countries we would find that tumors of one form or another, situated within some organ or upon some parts of the human body, constitute a large proportion of all the cases in the surgical wards outside the general class of injuries. Technically the modern term tumor is applied to a neoplasm only, but to conform to the existing nomenclature, which includes cysts and haematomata, we define a tumor to be a generally non-inflammatory, abnormal swelling of some of the tissues of the body, due either to retained secretions, extravasated fluid, or new formation. In a practical or clinical point of view, tumors of the

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breast may be divided into the inflammatory, the adenoid or innocent and the maglignant. As family physicians and surgeons, the diagnosis of these tumors will of necessity claim our attention. In this we cannot be too careful or painstaking, we cannot exercise any too great judgment or neglect to use all the skill we possess, else we shall be guilty of gross negligence and perhaps in many cases deprive our patient of a good prospect of cure, by sending her away, saying to her, "it is not of much account. I think it will disappear ; in case it continues to trouble you come in again and I will see about it." Who of us has not heard this said, or perhaps said something similar, to a patient who came to us for consultation, having all faith and confidence in our individual skill and judgment, in all things and upon all points, such as only women have? If you are in doubt do not hesitate to say so, and call in some one of more experience to see the case with yon. These patients neglected or wrongly advised by the family attendant and confidential friend, are quite liable to drift into the clutches of ignorant pretenders and charlatans, whose only knowledge of medicine and the treatment of this disease, consists in their ability to compound certain drugs so as to form a plaster, which, applied, will cause a mass of tumor tissue to slough and come away, many times deluding the patient into the belief of permanent cure. It is high time that we earnestly take hold of this and see to it, that we bestir ourselves and take these cases out of the hands of unscrupulous, designing and ignorant pretenders and restore them to their proper place in the hands of the regular profession.

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ETIOLOGY.

The origin of tumors is sometimes very obscure. They are frequently the direct result of an injury. Quoting Berger, "the form of traumatism predisposing to cancer is not so much a single severe injury as a succession of contusions which give rise to effusions of the blood and impair local nutrition. Prolonged or repeated irritation is more prone to lead to cancer when acting on tissues in a condition of senile involution." Vogel held that the blood alone is principally affected, but, in fact, the solids as well as the blood are affected. Then there is the theory of "constitutional taint," that all cancerous growths depend upon constitutional taint, which involves the supposition of congenitally defective cells. Cohnheim believed that all tumors are congenital. It is not possible within the intended scope of this paper even to mention in passing the various ingenious theories that have been advocated on the origin of tumors, and we cannot today satisfactorily explain that indefinable factor in their production which we term individual susceptibility.

Success or failure in the treatment of tumors, or cancer, depends largely upon an early diagnosis. The age of the patient furnishes one of the most important elements of diagnosis from a clinical standpoint. After the menopause has been thoroughly passed, every tumor of the breast is probably cancer. The first point the physician or surgeon has to determine when consulted by a patient who has something wrong with her breast, resolves itself in some form or another into the question as to the existence or non-existence of a tumor. That is, is there a new growth developed behind, within, or in connection with the mammary glands? Or is the disease from which the

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patient is complaining and suffering situated in the substance of the glandular structure itself? This first and very grave question is one which must needs be solved before a further step can with safety be taken towards the formation of a correct diagnosis of the case, and it is surely quite impossible to magnify its importance. To do this intelligently, much care is needed and no small amount of manipulative skill is called into requisition; for a hasty, negligent or careless examination will surely end in an uncertain diagnosis, and with this starting point neglected or overlooked through undue haste or otherwise, a failure in treatment must of necessity follow. The symptom of pain is so variable as to be of little aid in diagnosis, even in cancer of the breast, in which case it is often very slight or entirely absent. The sense of touch when educated by experience is the almost infallible diagnostician of cancer. A physician may discard every other means, and yet correctly diagnosticate cancer with his index finger. I believe in the "local" origin of cancer as opposed to the "constitutional" origin. Permit me to quote Mr. Jennings upon this point: "Cancer first affects the body locally, spreads locally, invading the body along the lymphatic and vascular systems. Some soils are more congenial to the development of cancer, and tissues peculiarly favorable to the propagation of cancer, or the reverse, may be acquired by inheritance. The disease can be completely eradicated by surgical operations and when they fail the inference is that they had not been undertaken sufficiently early nor with sufficient boldness."

Non-malignant neoplasms and tumors of the breast, without a doubt, are so often the precancerous stage of the disease, that after the cessation of the menopause, we

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should not insist upon a positive diagnosis before deciding to remove the growth. I believe that when the breast is removed, to be more certain that there shall be no return of the disease, it is necessary to also remove the axillary glands. The axillary glands are enlarged and hard when the patient first comes under our care in about 65 per cent of all cases, and in one out of every 22 cases, the glands of the neck are also invaded. The treatment of such cases should be early and thorough removal of the breast and axillary glands by the surgeon's knife, under aseptic and antiseptic conditions rigidly enforced.

I will rest the modern treatment of this subject and turn to its diagnosis and treatment by our ancient followers of Æsculapius.

TUMOR—*from tumeo, to swell, a swelling.*

Tumores, Tumors, an order in the class locales, of Cullen's Nosology, comprehending partial swellings without inflammation.

Cancer, the name of a disease from *Καρκινος*, a crab; so-called by the ancients because it exhibited large blue veins like crabs' claws; likewise called Carcinoma, Carcinos, by the Greeks; Lupus by the Romans, because it eats away the flesh like a wolf. Dr. Cullen places this genus of disease in the class of Locales and order Tumores. He defines it as a painful scirrhous tumor, terminating in a fatal ulcer. Any part of the body may be the seat of a cancer though the glands are most subject to it. It is distinguished according to its stages, as occult and open; by the former is meant its scirrhous state, which is a hard tumor that sometimes remains in a quiet state for many

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years. When the cancerous action commences in it, it is attended with frequent shooting pains; the skin that covers it becomes discolored, and ulceration sooner or later takes place, when the disease is denominated open cancer. Mr. Pearson says, "when a malignant scirrhous or a watery excrescence hath proceeded to a period of ulceration, attended with a constant sense of ardent and occasionally shooting pains, is irregular in its figure, and presents an unequal surface; if it discharges sordid, sanious, or fetid matter; if the edges of the sore be thick, indurated, and often exquisitely painful, and sometimes inverted, at other times distorted, and exhibit a serrated appearance; and should the ulcer in its progress be frequently attended with hemorrhage, in consequence of the erosion of blood vessels, there will be little hazard of mistake in calling it a cancerous ulcer." In men a cancer most frequently seizes the tongue, mouth or penis; in women the breast or the uterus, particularly about the cessation of their periodical discharges; and in children the eyes. The following description of scirrhus and cancer, from the above writer, will serve to elucidate the subject. A hard unequal tumor that is indolent, and without any discoloration in the skin, is called a scirrhus; but when an itching is perceived in it, which is followed by a pricking, shooting or lancinating pain, and a change of color in skin, it is usually denominated a cancer. It generally is small in the beginning, and increases gradually; but though the skin changes to a red or livid appearance, and the state of the tumor from an indolent to a painful one, it is sometimes very difficult to say when the scirrhus really becomes a cancer, the progress being quick or slow according to concurring causes. When the tumor is attended with a peculiar kind of burning,

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shooting pain, and the skin hath acquired the dusty purple or livid hue, it may then be deemed the malignant scirrhus or confirmed cancer. When thus far advanced in women's breasts, the tumor sometimes increases speedily to a great size, having a knotty unequal surface, more glands becoming obstructed, the nipple sinks in, turgid veins are conspicuous, ramifying around and resembling a crab's claws. These are the characteristics of an occult cancer on the external parts; and we may expect the existence of one internally, when such pain and heat as have been described, succeed in part where the patient hath before been sensible of a weight and pressure, attended with obtuse pain.

A cancerous tumor never melts down in suppuration like an inflammatory one; but when it is ready to break open, especially in the breast, it generally becomes prominent in some minute point attended with an increase of the peculiar kind of burning, shooting pain, felt before at intervals, in a less degree and deeper in the body of the gland. In the prominent part of the tumor, in this state, a corroding ichor sometimes transudes through the skin, soon forming an ulcer; at other times a considerable quantity of a thin lymphatic fluid tinged with blood from the eroded vessels is found on it. Ulcers of the cancerous nature discharge a thin, fetid, acrid sanies, which corrodes the parts, leaving thick, dark-colored, distorted lips; and fungous excrescences frequently rise from these ulcers, notwithstanding the corrosiveness of the discharge. In this state they are often attended with excruciating, pungent, lancinating, burning pains, and sometimes with bleeding. Though a scirrhus may truly be deemed a cancer, as soon as pain is perceived in it, yet every painful tumor is not a

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cancer; nor is it always easy to say whether a cancer is the disorder or not. Irregular hard lumps may be perceived in the breast; but on examining the other breast, where no uneasiness is perceived, the same kind of tumors are sometimes found, which renders the diagnosis uncertain. Yet in every case after the cessation of the catamenia, hard unequal tumors in the breast are suspicious; nor, though without pain, are they to be supposed indolent or innoxious.

In the treatment of this disease, our chief reliance must be on extirpating the part affected. Some have attempted to dispel the scirrhous tumor by leeches and various discutient applications, to destroy it by caustics, or to check its progress by narcotics; but without material success. Certainly before the disease is confirmed, should any inflammatory tendency appear, antiphlogistic means may be employed with propriety but afterward the operation should not be delayed: nay, where the nature of the tumor is doubtful, it will be better to remove it, than to incur the risks of this dreadful disease. Some surgeons, indeed, have contested the utility of the operation; and no doubt the disease will sometimes appear again, from constitutional tendency or from the whole not having been removed: but the balance of the evidence is in favor of the operation being successful, if performed early, and to an adequate extent. The plan of destroying the part by caustic is much more tedious, painful and uncertain. When the disease has arisen from some accident, not spontaneously, when the patient is otherwise healthy, when no symptoms of malignancy in the cancer have appeared, and the adjacent glands and absorbents seem unaffected, we have stronger expectations of success; but unless all the morbid parts can be removed without the risk of dividing important nerves or arteries,

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it should scarcely be attempted. In operating it is advisable. 1. To make the external wound sufficiently large, and nearly in the direction of the subjacent muscular fibres. 2. To save skin enough, unless diseased, to cover it. 3. To tie every vessel which might endanger subsequent hemorrhage. 4. To keep the lips of the wound in contact, not interposing any dressing, etc. 5. To preserve the parts in an easy and steady position for some days before they are inspected. 6. To use only mild and cooling applications during the cure. Supposing, however, the patient will not consent to an operation, or circumstances render it inadmissible, the uterus, for example, being affected, internal remedies may somewhat retard its progress, or alleviate the sufferings of the patient; those which have appeared most beneficial are, 1. Arsenic, in very mild doses long continued. 2. Conium, in doses progressively increased to a considerable extent. 3. Opium. 4. Belladonna. 5. Solanum. 6. Ferrum ammoniatum. 7. Hydrargyri Oxymurias. 8. The juice of the galium aporine. When the part is external, topical applications may be useful to alleviate pain, cleanse the sore, or correct the foetor; especially, 1. Fresh bruised hemlock leaves. 2. Scraped young carrots. 3. Fermenting poultice. 4. Finely levigated chalk. 5. Powdered charcoal. 6. Carbonic acid gas, introduced into a bladder confined around the part. 7. A watery solution of opium. 8. Liquid tar or tar water. But none of these means can be relied upon for effecting a cure.

Dr. George Dunsmore—The paper has been so exhaustive in its character and has covered the ground so thorougly there is very little to say. It is true that the area or terri-

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tory involved in the disease, is very large when we come to consider diseases of the breast. Perhaps there is no trouble we meet with that bothers us so much as these diseases ot the breast. It is no uncommon thing as was said in the paper, to have a woman come to us with hard bunches in the breast and we do not know what to do—we do not know what they are—at least I do not. If we wait we can know, but the great point is to give some diagnosis when we first see the case. We dislike to say to the woman, "I am afraid it is cancer," or "it looks very much like cancer." It is a very hard thing to say, and few men have the courage to say it unless they know positively, and as a rule they do not and cannot know it positively in the beginning of the trouble. We have a great many diseases that begin just as cancer begins—as a hard lump in the breast—that are not cancers and are non-malignant. It is a very difficult matter to tell whether a tumor is malignant or non-malignant in the beginning. For instance, we have an adenoma—that is, a benign tumor, and its structure is similar to the gland structure. You can hardly tell the difference—it is filled with lymphatic tubes and in some instances milk tubes have been found. You may examine it with a miscroscope and I defy you to tell the difference between that growth and a cancerous growth at that stage. A tumor of that kind will grow and get hard and it will occupy perhaps a portion and perhaps the whole lobe of the breast. It may be rough on the surface and uneven and have every appearance of cancer except, perhaps, the pain. I do not see how a fellow that does not know any more than I do about these things is able to tell with that roughness and hardness, whether it is cancer or only adenoma. Then, again, we have chronic abscesses that runs sometimes for years before they break and sometimes

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do not break until opened. They are hard and remain hard a long time and finally they soften and then we know what they are. There is an abscess that resembles them very much, the milk abscess—not one that comes immediately or soon after confinement—but some time afterwards. A milk duct bursts and the milk passes into the surrounding tissue and a cyst forms around this and it may remain there for years and years. It is not painful, as you might expect, and finally it is opened and the milk passes out ; it looks exactly like pus but it is not pus, it is milk in which the watery element has been absorbed—it is a creamy substance. I have no doubt a great many of these milk abscesses have been regarded as chronic abscesses. In one sense they are, because they are old, but not chronic in the sense we use the term. These things give us a great deal of trouble ; we meet them and we do not know what they are. Of course if we find anything in the breast that is soft, anything that fluctuates, my idea is to open it at once and see just what it is ; if it is milk all right ; if it is a cyst all right. If it is cancerous it should be removed. But until that time of softening comes, I really do not see how a man is to tell the differerence in some of these growths. I should be pleased to hear from men in the profession who are better posted than I : I should be glad to have them tell us how we can recognize cancer when we first see it, and make no mistake.

Dr. H. R. Wilder—I do not arise to attempt to add anything to the interesting paper and the remarks of Dr. Dunsmore, but I would like if possible to emphasize the principles introduced in the preliminary remarks in the paper, that is in reference to membership of this society. I believe it is a matter of great interest to every member ; we should seek to

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bring into this society the younger members of the profession. It would be certainly a profitable investment of time for them if they would become members of this society. And in the different parts of the State those who are members might say a few words of encouragement to young members of the profession towards inducing them to become members of the society. If we would all bear that in mind I think we might accomplish a great deal and be of benefit to our brother physicians.

The President—Are there any further remarks to be made in the way of discussion? If not, Dr. Howard, have you anything to say in closing?

Dr. Howard—I dare say, gentlemen, you find this as hard a subject to talk upon as I did to write upon. When I came to look over the subject I found the easy subjects had been all exhausted. Having had some experience with cases of this kind I thought I would bring the subject before the society and see if I could not get some light upon the subject myself. I believe about the first case I was called upon to treat in my practice was one of hemorrhage from cancer of the breast. I was called upon to check the hemorrhage. I have seen cases of cancer in the breast and other parts of the body, and in the stomach and liver and I must say I do not know how to treat them. Perhaps arsenic gives us as good a remedy as we can get. I was pleased to hear the light thrown on the subject by Dr. Dunsmore's remarks. I must still insist in my belief that when a woman has passed the period of her monthly flow, that after that time all tumors of the breast must be regarded as suspicious. If we cannot find some antitoxine remedy to be used by injection with a syringe—injection into the tumor—something that will have a specific

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effect upon the tumor—unless we can find such a remedy we shall have to remove the breast and also the axillary glands. I had a paper giving a description where some surgeons in the old country had been injecting arsenic into these tumors and the patients had received benefit from the treatment.

Dr. G. B. Bullard—I hope the discussion of Dr. Howard's paper is not closed.

Dr. L. H. Hemenway—I have seen a suggestion that after operation for cancer, the lips of the wound should be approximated and kept closed. Dr. McLean says he does not get good results in that way, and he advises a contrary practice; he found that it was more apt to bring about a return of the disease in a short time. His idea was that it was better to leave the wound open—that is the method of practice in the treatment of cancers at the Rome Institute. He leaves the wound open and of course adopts antiseptic dressings. He thought he got much better results as far as a return of the disease was concerned.

Dr. G. B. Bullard—This is a very interesting subject to me, having had some experience. An authority of eminence says there are no bacilli found in cancer. Referring to Dr. Howard's paper, I have in mind fourteen cases every one of which died but two. The last six were removed antiseptically and by the very best of surgeons, but the cancer invariably returned; I have nothing to offer on this subject, but I wanted to hear a little more discussion on this important matter, because as members of this society we come here to get points and exchange views and knowledge.

Dr. M. D. Warren—I should not agree in the remarks of the brother about leaving the wound open. I think

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rapid cicatrization of the wound is of prime importance. I think the quicker you can close that wound and have it unite by first intention, the better; it is a matter of prime importance. Another thing the occurred to me that was not mentioned or not much said about it as a diagnostic factor in those cases, is retraction of the nipple which occurs early in the disease. When you find retraction of the nipple and a hard lump in the breast—the tumor having a hard center and the axillary glands involved, you may feel very sure the disease is malignant and I should advise immediate operation.

Dr. J. H. Hamilton—We are often called upon, very often, to make a diagnosis in cases of tumors of the breast, and it is difficult, even next to impossible, to decide correctly. I will go further, and say it is impossible many times. When I find a hard tumor of the breast I hesitate to call it cancer. I tell the patient I cannot decide now but I will keep watch of the case. If I find a fungus extending from that I regard it as malignant; I do not pronounce it malignant until I discover that. I regard it of great importance to remove the malignant growth early. After the climacteric period has passed, I would not wait to see whether it is going to become malignant, I would have it removed. After that time the breast is of no possible use; it could never be of any possible use by the woman or anybody else. So I would remove the breast. I would make the patient understand that it is impossible to foretell what it may be and that the safest thing is to remove it. If there was retraction of the nipple and the axillary glands are enlarged, I would remove the breast at once. I think that is the safest and surest way and I think that is

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why the quacks succeed so often is because they resort to that operation early and remove the disease, eradicate it. The trouble is it is left until it is too late to prevent the spread of the growth of the cancerous matter.

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"Carcinoma of the Female Breast."

By M. D. Warren, M. D., Cabot.

Mr. President and Fellows of the Vermont State Medical Society:

In selecting the subject which I have for this paper I was induced to do so from the appalling frequency of the disease; also from the fact that it seems to be on the increase. Joseph D. Bryant of New York demonstrated this fact before the New York Medical Association in 1895 by statistics showing that in the United States the mortality from cancer in 1850 was nine for one hundred thousand living; in 1860 it was 11.7; in 1870, 16; in 1890, 33.5. And of all organs of the human body the most frequent situation of neoplasms is the female breast, and according to W. Roger Williams 95 per cent. or these are malignant. It is this preponderance of malignant tumors of the breast coupled with the fact that benign growths at times take on a malignant form, which proves at once the fallacy of the widespread belief among many physicians that as long as a tumor of the breast remains quiescent it is unwise to remove it. This idea undoubtedly originated from the dread of a surgical operation, with both patient and physician, prior to the days of aseptic

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surgery, as at that time the prolonged process of healing with the then much talked of Laudable Pus, not only caused much pain and suffering to the patient but undoubtly the mortality was greater and relapses much more frequent than now, when we consider the mortality from the operation almost nothing and relapses are less frequent. Diagnosis, a positive diagnosis, rests entirely upon a microscopic examination of the growth by the microscopist, but with careful consideration of a case one need scarcely be mistaken in the diagnosis of carcinoma of the female breast. The disease may commence in any portion of it, but usually in axillary segment. A small, hard nodule is usually accidentally discovered by the patient without having had her attention called to it by the presence of pain, or there may be slight pain which is at first described as of a stinging character and deep in the breast, and as the disease progresses the pain is apt to increase, and be complained of as streaking out into the shoulder and down the arm. The tumor is hard and stony, is deeply attached to the gland, and if movable simply slides on the pectoral fascia ; the nipple begins to retract early in the disease, and later may become umbilicated so that it is drawn entirely within the gland or below the integumentary surface, and as the disease progresses the axillary glands will sooner or later become affected. The time varies considerably as to progress of the disease, but as a rule I think the axillary glands, within one year from the time the disease is first noticed in the breast, are quite likely to be involved so that one should always feel for enlarged axillary glands when exammining a breast for carcinoma.

The growth in the breast may appear to vary in size in its earlier stages as I have had my attention called to

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this many times by the cases which I have seen. This apparent variation in size I think is due to the different degrees of congestion of the capillaries near the border which separates the cancerous growth from normal tissue, but the hard, flat, rounded scirrhus cancer never grows smaller but gradually increases in size. The disease rarely involves the whole organ. It gives rise to considerable deformity by the growth adhering to the skin and producing contractions in the same, giving a dimpled or wrinkled appearance over the growth to the otherwise smooth and rotund integumentary surface.

A large percentage of cases occur between forty-one and fifty years of age. It may not be amiss to speak of the method of examining a breast. To examine a woman's breast properly she should be lying on her back; if examined in any other position it can be so manipulated as to convert it into various shapes. When on her back examine by pressing finger tips back through the breast against the chest walls, and not by pinching the structures up between the fingers as this causes much more pain which may last for hours, and it also tends to irritate the growth.

The progress of the disease is subject to very great variation in different individuals, and the stage of the disease which I have described may be prolonged for months or years, but sooner or later, however, the skin over the growth becomes infiltrated, red, and advances towards ulceration and an ulcer forms, the edges of which are ragged, everted and attached to the growth beneath, and an ichorous discharge continues with more or less lancinating pain; and the patient at last succumbs, worn out, or dies from the ravages of cancerous growth in some vital organ.

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The etiology of carcinoma seems to be as yet somewhat obscure, although there is no dearth of literature upon this subject, and several have discovered (as they thought) the microscopic germ that caused cancer, while some other equally expert men with the microscope have shown us how the former cancer germ discoverer has been deluded into describing the cellular degeneration of cancer as the parasites which caused it.

(a) Experiments in support of the zymotic origin of cancer have thus far been without success, the bacilli found in cancerous growth not being capable of producing real cancerous tissue in other persons.

The congenital and hereditary origin of cancer is considered, by Critzman of Paris, who states that all acquired lesions modify the general physiology of nutrition, and that modification must act upon the nutrition of the germinative cells. Now the function of the nucleus is to transmit a characteristic and the function of the protoplasm is the development and nutrition of the cell. If then, the acquired lesion does not influence the cell, it certainly exercises a vicious influence on the protoplasm of the genital cell. The nucleus is poorly nourished and the cells originating by division suffer from this morbid condition of the protoplasm, and the individual either does not develop as in the repeated abortions due to syphilis or comes into the world puny and badly prepared to fight against the infectious agents which assail him.

These considerations justify us in believing that cancerous subjects give birth to cancerous children, while tuberculous subjects have children born with a predisposition to contract tuberculous disease.

(a) Sajous annual, Vol. 3—L—Page 8, 1896.

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In examining into causes assigned for carcinoma, Gross cites 1,571 cases, in which trauma was assigned as a cause in 13-36 per cent, but in only about one-fourth of these was it shown that the carcinoma developed from the induration following the injury. We would, however, from present light on the etiology of carcinoma, ascribe as causative factors age, inheritance and irritation.

We will now consider the matter which is of most vital importance to our patients, the prognosis, which must of necessity be considered grave when it is decided that a mammary tumor is a carcinoma; but with an early diagnosis and prompt excision of the entire mammary gland, pectoral fascia and axillary lymphatic glands, quite a large per cent may have the disease entirely removed and live for many years. Do the operation antiseptically, and if all diseased tissues are removed the wound will heal by first intention and a sure cure will be primarily and permanently affected. Bull, in an article in Medical Record, Vol. 46, Page 225, stated his individual results to be 26.6 per cent. Dennis, in 1892, stated that 25 per cent operated on by him passed the three year limit, for as Dr. Frederic H. Wiggin says in his paper read before the New York State Medical Association, October 16, 1895, "after three years have elapsed the tendency to recurrence is slight." Thomas Bryant, in International Journal of Surgery, page 249, 1891, lays great stress on an early diagnosis and says that "many patients imagine that a disease unattended with pain cannot be a cancer," but in thirty cases of this kind where Bryant had recommended an immediate operation, the disease proved to be cancerous on operation, and in none of these cases had there been a recurrence. When the disease has advanced further so that there is dimpling and puckering of the skin over the

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growth and some immobility, a radical operation may still effect a cure. In my slight experience with this disease I have operated twelve times for carcinoma of the breast, and of these five are living, but only one of these has passed the three year limit, and this case was operated on eleven years ago at an early stage of the disease, and this patient has enjoyed good health ever since that time. Of the others, one was operated on one and a half years ago for cancer of right breast which had been present only about three or four months, and about a year later I removed the other breast in this patient, and in both operations the axillary glands were removed. I think in this case the second cancer was not a metastasis from the first but that both breasts were nearly simultaneously affected and that in this case the prognosis is quite favorable, at least her life will be considerably prolonged and made more comfortable if the disease is not cured; and in one of the other cases which I operated on ten months ago the cancerous growth was small and less than six months old so far as the patient knew. The axillary glands, so far as I could see, were not involved, yet after removing the breast they were thoroughly removed. The wound healed by first intention and I think the prognosis in this case is good.

Repeated operations for a return of the disease, or rather when the disease continues, are sometimes successful. Dr. C. Dedric of Knoxville, Tenn., reports a case in which he removed the breast when the disease was far advanced, and within one year from the first operation he did six operations on this patient near the site of the original operation, removing recurrent cancerous growths, and then the patient's health became good and there was no return of this disease for over seven years when she died

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of some other disease. Therefore, I conclude that if there is a recurrence of the growth it is not necessarily fatal, but repeated operations may yet effect a cure.

TREATMENT. The treatment, as has already been suggested, is removal with the knife. Do not be content with a partial operation, that is of simply removing the tumor, but in every case remove the entire mammary gland and pectoral fascia, or at least that portion of it which is adjacent to the cancerous growth, also the axillary glands should be removed in every case whether apparently diseased or not. It is also well to examine carefully before closing the wound for enlarged lymphatic glands in front of the shoulder by passing a finger well up into the region beneath the skin in the cellular tissue, and we occasionally find one of these enlarged little lymphatic glands hid up behind the tendon of the pectoralis major, which can be removed with the end of the index finger.

PREPARATION OF PATIENT AND DETAILS OF OPERATION.

It is well to have the patient take a dose of oil the day before or some cathartic that will move her bowels thoroughly; also at about 2 or 3 P. M., have patient take a bath and at about 4 or 5 P. M., the affected breast and axilla should be again soaped and shaved thoroughly and then scrubbed with a nail brush and a 1 to 1,000 solution of bichloride of mercury, after which a towel or a large piece of gauze should be wrung out of this solution and placed so as to cover the field of operation on breast and axilla. Then this is to be secured in place by a binder about eight or ten inches wide, being pinned snugly over the compress which is to remain in place until the hour

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fixed for the operation the following morning, when, considering the case to be in a private house, the following preparations will be necessary.

First, for an operating table, the kitchen table answers very well; it should be so placed as to have a good light and covered with a quilt and rubber sheet, and beneath the rubber sheet a roll of newspapers may be brought around in a semi-circle so as to conduct irrigating fluids and blood into a pail on the floor after the manner of the Kelley operating pad; a small table is moved to a point conveniently near for instruments and materials, and this should be covered with a towel wrung from the 1 to 1,000 bi-chloride of mercury solution; and then, after having boiled all instruments to be used in a weak solution of bi-carbonate of soda, you will need the following: 1st, Two tumblers filled with 1 to 40 solution of carbolic acid; into one of these put ten or twelve hæmostatic forceps, and into the other two pairs of scissors, one small curved pair for trimming away fascia, etc., and one straight pair for cutting dressings, also a pair of mouse-toothed forceps for lifting small portions of diseased tissue may come handy, and two scalpels; 2nd, one nappy of 1 to 40 carbolic solution, containing one pair vulsellum forceps, one pair retractors, plenty of silk wound on a spool or piece of paper for ligatures; also two or three straight needles threaded with silk, one medium-sized rubber drainage tube and about two feet of silver wire, with four or six lead buttons for producing coaptation of the deeper portion of the wound and relieving strain on the superficial sutures; also one perineum needle; 3d, one bottle of iodoform; 4th, 1 jar of iodoform gauze; 5th, one five yard jar of bi-chloride gauze; 6th, one wash bowl of 1 to 1,000 bi-chloride of

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mercury solution, in which should be placed four towels and four or six sponges made from the bi-chloride gauze; 7th, one four ounce package of absorbent cotton.

The etherized patient is then brought in and placed on the table, and all clothing down to the waist is removed, also the antiseptic pad which was placed on the breast and in the axilla the day before.

The surgeon and his assistants wash their hands and arms and see that their nails are well cleaned, using a nail brush, and then wash in a 1 to 1,000 bi-chloride of mercury solution, and this toilet will be carefully attended to if they appreciate the importance of this measure.

The diseased breast and axilla are again washed with the 1 to 1,000 bi-chloride solution and then rinsed off with ether. The towels are now wrung out of the bi-chloride solution, and one is spread across the chest just below the affected breast, a second one covers the shoulder and arm, while a third covers the other breast, the inner side of the towel coming to the mesial plane of the body, so that the surgeon's hands, or his assistant's, sponges, instruments or ligatures will not come in contact with any septic or unprepared thing. One assistant standing near the patient's head holds the arm on the affected side above the patient's head, and the arm is to be kept in this position until the surgeon is ready to place the sutures.

The surgeon having determined the outlines of the cancerous growth, should endeavor to cut some distance from this if possible and leave nothing but healthy tissue. The lines of incision best calculated for a breast amputation, as a rule, are of an eliptical form, the nipple being the centre of the elipse, the outer point being at the outer border of the axillary space, and the line of incision in the

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axillary fold made by the pectoralis major muscle. The other point of the elipse made by the incision is downward and forward and inward from the axillary space or near the costo-sternal articulation of the fifth rib.

The amount of integument to remove with the nipple will vary very much in different cases and can only be determined by experience and the best judgment of the surgeon. Carefully outline as to where you will cut before using the knife. It is well to make the first incision on the lower side so that the blood from the upper incision will not obscure the field of operation. A few rapid and tolerably deep cuts are made on the lower side dividing the skin and cellular tissue from the internal to the external point of the elipse described at the outer portion of the axillary space, then a pause is made and all bleeding vessels are ligated. Then the incision on the superior border of the breast is made in the same manner, and all bleeding vessels ligated; after which the breast is seized with vulsellum forceps by an assistant and traction is made forward and outward, and the surgeon then cuts through the pectoral fascia over the pectoralis major muscle and dissects carefully from the muscle so as to expose the fibres of the same, and in this dissection examine carefully for any cancerous foci which may invade the muscle, especially beneath the point where the tumor was located and if any such points are found remove that portion of the muscle freely, and if the muscle should be much involved excise it entirely. After dissecting up the pectoral fascia the breast drops down on the side between the patient and operator, and thereby makes traction on the axillary region, and the surgeon should carefully follow up his dissection into the axilla as far as the

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axillary vein and remove all the glands, fat and connective tissue. This should be done for the most part with the handle of the scalpel and the end of the index finger. The axillary vein it is well to be careful of and not open.

It would seem that the cephalic vein should be able to carry the return circulation from the arm, but a sufficient number of cases of gangrene have followed this operation to admonish us to be careful and not open the axillary vein. As soon as the mammary gland and pectoral fascia are turned back tie all bleeding vessels, and while the axillary space is being cleansed out, a towel wrung out of a warm 1 to 1,000 bi-chloride solution should be spread over the wound where the mammary gland was removed. The nerves which you are likely to come in contact with in cleaning out the axilla are the internal cutaneous, the inter-costo humeral and thoracic. If these can be separated out and saved for future use do so, yet they can be removed without any serious results.

After removing the axillary glands remove the towel from the wound where the breast was removed, and see that all hemorrhage is stopped here and in the axilla, then close the wound. In doing this I use two or three silver wire and lead button sutures to produce coaptation of the deeper portion of the wound and relieve strain on the superficial sutures. In placing the silver wire sutures I use a perineum needle which I find answers the purpose very well, by passing the needle from the bottom of the wound down through the lower flap, now thread the wire and draw it up through the bottom of the wound, remove needle and pass it through the upper flap, thread the wire into needle again and it is quickly drawn into place. Just tension enough should be placed on the lead button sutures

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to relieve strain on the superficial sutures and secure coaptation of the deeper portion of the wound. Before placing the superficial sutures to close the wound, see that you have not left too much integument; if so, trim it down so that the flaps will just cover the wound smoothly. Then close the wound with carbolized silk sutures, place a medium sized rubber drainage tube in the wound near the axilla, then make pressure with hands over the site of the operation and squeeze out all blood that has accumulated, then dust the line of suture with iodoform, and lay on three or four pieces of iodoform gauze, which should be followed by three or four pieces of bi-choride gauze, taking care to get both well secured in the axilla by passing a narrow strip of surgeon's plaster around under the gauze and over the shoulder. Now cover the gauze over the chest with a layer of absorbent cotton, then another layer of gauze. Now place a binder of cotton flannel about eight inches wide around the chest over the dressing and pin snugly with safety pins, and then one end of a piece of cotton cloth about twelve inches wide and one yard long should be pinned to the binder on the back and brought over the shoulder on the affected side, and then after placing the forearm across the body bring the cloth down under the forearm and elbow, and up over onto itself and pin with safety pins so as to support the elbow and forearm in an easy position.

On the third day after the operation remove the dressing, which will be more or less soiled from the discharge of blood and serum, also remove the drainage tube, and place a small piece of iodoform gauze in the opening where the drainage tube came out; redress the wound as before and if there is no marked rise in the patient's temperature

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the dressing need not be again disturbed until the tenth day after the operation, when the sutures may be removed and the wound will be found to have healed by primary union. It will be well, however, in some cases, if the cicatrix seems a little weak, to apply two or three strips of surgeon's plaster to remain until the union becomes more firm, and an antiseptic dressing should be worn for at least three weeks and the arm carried in a sling for two or three weeks longer.

The operation when done by methods which are fully up to the times on operable cases, will cause very little suffering to the patient, and will heal in ten or twelve days. The danger from the operation is almost nothing.

The prognosis is certainly much improved by an operation and even where a permanent cure is not effected there is an interval of rest from the disease, and we think by early and thorough operations the mortality from this disease will be materially lessened.

DISCUSSION.

Dr. L. M. Bingham—This subject interests every general practitioner and is one that nearly all of us are probably familiar with, but the details so thoroughly carried out in the paper are commendable and refresh our minds in the way of undertaking these operations in the early stage of the disease. The greatest difficulty I have experienced in my practice in regard to removal of the breasts is getting at them at a sufficiently early period. I think too many of our associates in country practice are

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apt to regard tumors of the breast as of too little significance; they do not talk to the patient and give her to understand the danger that may arise as the thing progresses. It is pretty safe to say as a rule that all tumors of the breast should be removed unless you are positive in your diagnosis that it is simply a cyst or something of that kind—a simple benign affair. When you are in doubt you should certainly give the patient the benefit of the doubt and advise an operation. Unfortunately we do not control these cases; ladies are too apt to carry these little growths from six months to a year after discovery; there seems to be something about it that forbids their making known even to any other member of the family the condition they find in their breasts. So that when you are called upon you may be pretty sure there is something serious to give your patient cause to complain. This is not the case with all—many will hasten to the doctor at the first appearance of trouble, and you have an opportunity for prompt treatment. There is no method I have known that amounts to anything except complete removal. The appearance of the growth is so varied and peculiar it is a difficult matter to speak of the different varieties. If there is any one that in your mind is doubtful it should be removed at once. It may be a hard nodule that makes its way slowly, may be for a year, but it may at any time take on a rapid growth. Even those of cystic formation will often take on rapid growth and become malignant, which before have been only benign growths. It is not necessary to go over the details of the operation; they were very fully covered in the paper. I have of late taken a very different course in the operation as far as the use of instruments and sterilization; I have been in the

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habit of making everything antiseptic, preparing the patient the day before. Do not confine your antiseptic work to the immediate vicinity of the breast, extend it to some distance over the breast, on the neck and arms and down the abdomen. The instruments are made thoroughly sterile by boiling—nothing can be more complete than that. After boiling them I put them into sterilized water. The water should be filtered if possible before boiling. I use no antiseptics at all from the beginning of the operation to the end. I use no bi-chloride solution except to rinse off my hands, then I rinse them again in sterile water in every instance, and the breast and the parts receive the last application which is plain sterile water. Strong solutions are to be avoided—you may get two or three drops in the wound which prevents good healing. If you have made the thing perfectly antiseptic previous to the operation and your hands are all right, the last application of anything should be sterilized water, and for irrigation I use a normal salt solution—a teaspoonful of salt to a quart of sterile water—put it into the water to be boiled with it —do not add it after the water is boiled. I think I got much better results than where I used strong solutions of any kind. I agree with the doctor in regard to the details of the operation—he gave us a very good paper.

This morning before I came here I removed a carcinoma of the breast, the patient was a lady about thirty-six. The first symptom appeared about a year ago and she let it go and all this time she had a tumor growing and growing rapidly of late. The parts were rendered antiseptic and I proceeded in the same way as described.

There was no enlargement of the axillary glands, no enlargement of any of the glands, it was a simple schirrus

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growth about two inches and a half in diameter. Once we would simply remove that growth, now I remove not only the axillary glands but I go as far as I can see any glands whatever. In this case this morning I exposed the sub-scapular nerve and vessels and removed all the glandular tissue I could find even up to the clavicle. It is of great importance to make the work thorough in the first place, secondary operations are not successful; sometimes there will be a reappearance of the disease in a remote organ but most always it is at the original site of the operation. Usually it recurs in the deeper glands and also in the skin, but when there is a recurrence, while there may a few cases on record where repeated operations have been successful, I imagine they are very rare.

Dr. E. M. Pond—There is a certain class of cases in which the skin is badly involved and in order to make a successful result, it is best not to spare the skin in such a case. Allow a clot to form and having it all covered, it can be left for two weeks and at the end of that time you will find a primary cicatrization by the blood clot. This is a great advance over the old method of cicatrization; if covered by gauze we have a granulated wound which takes a longer or shorter time to close and by this protective covering we get a cicatrization. In regard to ligatures; in the last two cases I have operated upon, after using the haemostatic forceps and washing off thoroughly with hot water, I simply remove the forceps without ligating any of the arteries or veins and I had no hemorrhage to speak of. I think the silk worm gut suture preferable to silk, it may remain two or three weeks without the necessity of being removed.

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Dr. L. M. Bingham—That reminds me of another suggestion I forgot and that is in regard to the use of forceps ; it may be of interest to physicians to know the better kind ; there are two classes of haemostatic forceps and you want to get one with a large, strong jaw and good strong forceps which will grasp and crush a vessel. Use good strong forceps and in nine times out of ten, you will need no ligature at all. I think the crushing like that is better than the old method of twisting the vessels.

I want to ask the author of the paper whether he made any microscopic examination in the case he operated on the second time, to ascertain if it was carcinoma or some other form of growth.

Dr. C. W. Strobell—This is a very interesting subject. It seems to me that early operation is the thing. Then there is one other point and that is in regard to the tying of the vessels. I think too much care cannot be taken in stopping every point of hemorrhage before closing up the wound. If you leave a little oozing at any vessel it forms an irritation which prevents healing by first intention. We should always take great care to tie vessels so that there shall be no bleeding. Wash carefully with sterilized water and close the wound as the doctor stated.

Dr. Warren—I would say to Dr. Bingham that there was not any microscopic examination in either case, but from the feeling and appearance of the breast I—in conjunction with two or three other physicians—diagnosed the case to be carcinoma.

There are two things in the paper I expected remarks upon or criticism, namely, the lead button suture and the drainage tube. Some of the best surgeons in removing

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the breasts do not use drainage tubes. It is the practice of some good surgeons in cancer of the breast, at the end of four or five days, to reopen the wound and get rid of the blood and serum that have accumulated there. My idea is to use a medium-sized drainage tube put in near the axilla for the blood and serum to ooze out, for two or three days, then when most of it has oozed out you can remove the tube and put in a bit of iodoform gauze and the opening closes up so that you get primary healing. I use the lead button suture with a little nipple projecting with a hole through the nipple; a wire can go through the lead nipple of the button, and with a pair of forceps pinch up the nipple and that fixes your wire and produces coaptation of the deeper portions of the wound and relieves the strain upon the sutures.

Dr. G. B. Bullard—I think if there is anything absolutely unskillful and unscientific it is to use the drainage tube, in aseptic surgery. Of what use can such a thing be unless you form an opening to carry sepsis into the wound. I think the best surgeons of to-day have absolutely abandoned the drainage tube.

Dr. D. C. Hawley—In regard to the method of procedure—taking into consideration the paper of Dr. Howard as well as the one under immediate discussion—I believe it is fair to say that there is but one proper method of treatment of malignant tumors of the breast, and that is removal with the knife. Other methods of treatment are not worth consideration by a body of scientific men. In regard to the method of operation I should not differ from the author of the paper except in some of the details; in regard to asepsis—I agree in every particular. The patient should be prepared with the greatest care, also the

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operator and assistants as well. My method is similar to that described by Dr. Bingham; I have not for the last few years used instruments taken directly from any solution. I use dry instruments but they are sterilized thoroughly and then laid upon a table covered with sterilized towels; those that have become bloody are washed in sterilized water and returned to the table for further use. In regard to the suture material my present practice differs from that of a year or two ago; I have within the past 5 or 6 years used to a considerable extent cat-gut sutures and decalcified chicken bone drainage in these operations and have put the case up and left it eight or ten days, occasionally a little longer and upon taking it down have found the suture material and drainage tube absorbed and the case thoroughly healed. Latterly I have come to use silk worm gut sutures and I think this the best suture material in every case where it can be used; it can be left in the wound seven or eight days, or two weeks, if you choose, without any trouble. As far as drainage is concerned it is my practice at present to use no drainage whatever; all of my late cases I have put up with silk worm gut sutures and no drainage, and for dressings have used plain sterilized gauze. In my hospital work I have abandoned iodoform gauze and all medicated dressings. I believe very much as Dr. Bullard does that the use of the drainage tube is unnecessary. Some one has spoken of the oozing of blood and serum, and I will say on this point that it is not my practice to put in the sutures very close together—I leave considerable space between them and especially towards the axilla so that for the first few hours there may be free oozing of blood and serum. It seems to me if the hemorrhage is well checked there will not be much ooz-

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ing of blood, though there will be some serum of course. I agree with Dr. Bingham that it will be necessary to ligate but very few vessels if you use the hæmostatic forceps, which stop hemorrhage. I am not in the habit of using any solutions on the wound during the operation. At the close I wash it off carefully with the normal salt solution, making the wound perfectly clean, close it with silk worm gut sutures without drainage and with an application of sterile gauze dressing.

In regard to a point brought out this morning as to operation in cases that are far advanced. My experience is that it is useless to operate in a case in which you have enlargement of the glands above the clavicle. In a great majority of cases we get enlargement of the glands in the axilla. It is my practice to remove the axillary glands whether enlarged or not; they should be thorougly removed in all cases, but in cases where there is involvement of the glands in the neck above the clavicle, I do not believe it is good surgery to operate; the chances are you will not be able to save the case. As some gentleman remarked there is always difficulty of diagnosis. We should however, try and remember the different manner of growth of a benign and a malignant tumor. The benign tumor grows by simply increasing in size and crowding the other tissues out of the way—the malignant tumor grows by involving all of the tissues. If the tumor seems to involve all the deeper tissues and begins to involve the skin, there is no question but what it is a malignant tumor. If we have the stony hardness and the involvment of the skin, in any degree, with retraction of the nipple and with enlarged glands in the axilla, it is safe to say the tumor is malignant and to remove it. On the other hand in view of the

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fact that all benign tumors of the breast are likely to become malignant, it may be set down as good surgery to remove all tumors of the breast early.

Dr. J. B. Wheeler—There is no doubt the ideal of operating to-day is a perfectly asceptic operation using all the antiseptic aids that we have at our command in order to secure the best possible results with the minimum of discomfort to the operator and danger to the patient. In some cases it is not possible to do your operation in that way; I have sometimes had to do an operation where it did not seem possible to bring the patient and the surroundings into such a condition that I was willing to dispense with bi-chloride irrigation. A great many cases, and I do not know but all cases operated on in that way will do well so far as danger do the patient's life goes and the prospect of recurrence. You may not get so large a per cent. of perfect union by first intention, but your patient will come through and the danger of recurrence will be just as little as if done any other way. I do not want to give the impression that I am recommending anything less than the ideal; I simply state that in some cases it is not practicable. There will be variation in the details according to the personal habits and practice of different operators. One man will get better results by drainage because he is familiar with it, and in the habit of using it, and another will get better results in the methods he is familiar with. The most important point to consider is the patient's welfare so well brought out by Dr. Warren and emphasized by Dr. Bingham, the desirability of the earliest possible recognition of the disease and its removal at once. If we could get hold of a tumor in the breast in its infancy we

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could remove it at once with very little trouble to ourselves or danger to the patient with a very good prospect of perfect cure and no recurrence. It is not always the patients who are to blame ; I think we are ourselves oftimes very much to blame. It is hard to realize that a little tumor which does not seem to amount to anything, which does not grow at all in a few months, it is hard to realize it may become so dangerous and the best way is to remove it in any event. A few weeks ago I saw one of the worst cases of cancer of the breast. The patient was the wife of a physician. She had one of those infiltrating growths involving the whole of the skin of the breast and the axilla, and the breast on the other side had begun to be involved. Her husband had noticed it early but had been unable to persuade himself or her that there was anything very serious the matter, and when they both got around to have something done the case was absolutely hopeless. I refused to operate because I thought it would kill her. Therefore, as I say, I do not think we can lay too much stress on the early recognition of malignant growths of the breast and their thorough and radical removal at the earliest possible moment.

Dr. C. W. Strobell—The subject has settled down to its surgical features. There are many cases which refuse operative proceedings ; they will absolutely refuse to be touched with the knife even though death is staring them in the face. They insist upon some application to the diseased part and they will get relief for two or three years. Now in a great majority of operative cases, a great many of them operated upon by the knife, die in three or four or five years. While I recommend operation, as I say there are patients who will not submit to it,

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and such patients must have other treatment, I have applied arsenic with favorable results. The patient will get relief for two or three years or three or four years. It seems to me such patients should have the benefit of some such treatment if they will not submit to the knife.

Dr. C. F. Camp—This discussion has been confined so far to remarks by surgeons who have the benefit of a hospital or sanitarium with every facility at their elbows. Would they advise a physician or surgeon to operate in a country home and confine himself to the use of the normal solution, and not irrigate with the antiseptic solution of bichloride of mercury? I would not dare do it unless I had better facilities or a better room to operate in than the usual bedroom that we find at the patient's home. I should every time use the antiseptic solution and should not dare to close the wound until I had done so.

Dr. H. D. Holton—I will answer Dr. Camp's question. I think if our instruments and our hands are antiseptic, I have not much fear about operating in the bedroom or in the cabin, even though it may be filthy. I remember seeing a boy with a crushed foot; he was at his home; I do not think the room had ever been cleaned; it was filthy. I said we must get some bad result from this atmosphere—but we did not get it. The dressings were as sterile as they would have been in a hospital. If everything used in the operation is clean, you will not be troubled much by your surroundings.

One thing more in regard to this matter of operation—the question was raised by some speaker whether we should operate in advanced cases. I think we should consider how much life we can give the patient. Years ago

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I had a patient who had an enormous breast, both glands were hypertrophied ; she had been to Rome to have the cancer paste applied and they declined to apply it, and said it was no use ; and she had been to Boston to some hospital and there they declined to do anything. The breast was very large ; it weighed seven pounds when cut off. She could not sleep without opiates and was suffering greatly. She said to me, "Anything you can do to relieve me, I wish you would." I advised removal and she consented to it and the operation was performed. It healed nicely and she progressed very well. I saw her the other day and it looked as if she was going to have more trouble; although at the operation I took out a pint bowl full of glands in the axilla and up under the clavicle. But by that operation I gave her at least one year of comfort, and I should do the same again in any similar case. She said to me the other day, "Well, doctor, I have had a good time this last year anyway, if this thing does come back." The consideration is how much comfort have we added to human life—that is the criterion.

Dr. Bullard—Last winter I attended Dr. Lister's clinic at Guy's hospital—an operation for tuberculosis of the elbow joint and wrist. The assistant held the arm and the doctor kept washing, washing it, as the operation proceeded ; I was in the seats with the medical class ; he turned to the class and said, "Gentlemen, there is all there is to it—keep it clean."

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The Modern Management of Diphtheria and Croup Cases.

By Augustus Caillé, M. D., Professor of Pediatrics, Visiting Physician to the Post-Graduate and German Hospitals, New York.

Diphtheria and tuberculosis have received more attention from the medical profession during the past ten years than any other prevalent disease. Since *Behring's* great discovery of diphtheria antitoxine the management of diphtheritic inflammation has become so totally different from the former empyrical and unsatisfactory treatment that no apology appears to be necessary for a renewed presentation of the subject, particularly if presented from a practical standpoint, and after a twenty years' experience in public and private practice.

Before we enter upon the treatment proper it may not be out of place briefly to speak of the value of bacteriological diagnosis. The acceptance of the Klebs-Loeffler bacillus as the specific causative factor in diphtheria has made it necessary to give a name to membranous sore throat in which the bacilli are not found, but in which various cocci are invariably present. This variety is at present called *pseudo-diphtheria;* and some modern textbooks therefore speak of *primary and secondary true diphtheria*, and *primary and secondary pseudo diphtheria*. Although the mortality of pseudo-diphtheria is not as high

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as that of the Klebs-Loeffler variety, still it is a very dangerous disease, and inasmuch as we cannot distinguish clinically one variety from the other, and inasmuch as valuable time is lost in waiting for a culture test—which, by the way, is not always conclusive or final—every attempt to adjust treatment in accordance with the bacteriological classification must be looked upon as a failure in the present state of our knowledge.

While fully cognizant of the scientific and practical value of bacteriological research, I am ready to confess that failure to clear up doubtful cases by cultures, and in good time, is a daily occurrence. Moreover, it is well known that in localities in which diphtheria is endemic, the majority of cases eventually prove to be a mixed infection; consequently the physician will be wise to look upon all acute throat affections in children, attended with fever and swelling of the lymph nodes, or upon membranous rhinitis without fever, or upon hoarseness with slow progressive stenosis as suspicious of diphtheria, and treat accordingly. The bacteriological diagnosis of diphtheria may be made in several hours by means of Loeffler's glucose blood serum and the incubator; still, to wait even a few hours for a bacteriological diagnosis, is not wise. The culture test should be looked upon as a confirmative one, and nothing more.

In tuberculosis, gonorrhea, typhoid fever, malaria, etc., the microscope establishes a positive diagnosis after which we may institute rational treatment, but in diphtheria our *specific treatment* comes *first*, the *microscope*, *last*.

Another point worthy of brief consideration is the difficulty of distinguishing clinically between follicular tonsilitis and diphtheria.

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As recognized by Dr. A. Jacobi more than thirty years ago, no amount of experience will enable the physician to distinguish between the two affections. *What looks like a tonsilitis to-day may be a virulent diphtheria to-morrow;* such cases should be isolated and treated as diphtheria. If a subsequent examination proves the contrary, no harm has been done. In practice, the physician who will act in accordance with these views, will have more success in the management of such cases than he who poses on an ultra-scientific pedestal, waits for the culture test in diphtheria, and writes death certificates.

CLINICAL AND CHARACTERISTIC VARIETIES OF DIPHTHERIA.

Although diphtheria is quite rare below the age of eight months, it is occasionally found in very young infants. During the past winter two cases of Klebs-Loeffler diphtheria came under my observation in babies less than three months old. One was a case of naso-pharyngeal diphtheria, which recovered after two doses of antitoxine à—1,000 units. The second case was one of diphtheria and croup, contracted from a nursing mother suffering from so-called tonsilitis.

The child died, and the diagnosis was confirmed by autopsy and culture. *The membrane* in true as well as in pseudo-diphtheria, presents many variations from a thick and cheesy, to a thin and veil-like deposit; occasionally the surface appears as though smeared over with pus, and frequently we notice an *infiltration* of the mucosa without detachable membrane. The latter form may persist for weeks if *antitoxine* be not used, and if the local treatment be at all harsh and irritating.

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Diphtheria runs it course as a *mild case*, a *septic case* or a *stenosis case;* but we can never determine at the onset whether a case will progress favorably or terminate fatally. Its characteristics are the formation of a membrane, the presence of fever, indurated lymph nodes in the neck, sepsis, laryngeal stenosis. In membranous rhinitis, and membranous laryngitis, there is usually no fever.

The following clinical varieties will be met in practice:

1. So-called follicular tonsilitis.
2. Primary diphtheria of tonsils and pharynx.
3. Primary naso-pharyngeal diphtheria.
4. Primary nasal diphtheria; also called membranous rhinitis or diphtheria larvata.
5. Primary laryngeal diphtheria (membranous croup).
6. Diphtheria without membranes (simulating simple angina).
7. Secondary diphtheria, following measles, scarlet fever, pertussis, etc.

The difficulty of distinguishing clinically between follicular tonsilitis and diphtheria is well shown in the following case: A boy four years old, took sick with what was believed, by an intelligent colleague, to be follicular tonsilitis. Two days later the tonsils and throat looked normal, and the physician ceased calling on the patient. On the fifth day a croupy cough and laryngeal stenosis developed. Antitoxine was at once given, and on the day following the boy was neither better nor worse. Toward evening on the sixth day the child, while sitting in bed and playing, died very suddenly—probably of heart paralysis. Culture tests showed presence of diphtheria bacilli.

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Diphtheria without membrane may lead to annoying controversy. A girl of five years affected with a chronic nervous trouble, for which she was under treatment at the Post-Graduate Hospital, became acutely ill, with high temperature, vomiting and mild cerebral symptoms. I saw her, in consultation, on the third day of her illness and found her mouth and throat a dusky brown red, bleeding to the touch, temperature 103 degrees, lymph nodes swollen, *no false membrane* anywhere. My diagnosis of septic diphtheria was rejected by the health officer because a culture-test made in the meantime at the post-graduate laboratory and the health board laboratory proved negative. On the day following a second culture-test showed virulent Klebs-Loeffler bacilli, and the health officer permitted the case to go to the Willard Parker Hospital.

Diphtheria which simulates a simple or scarlatinal angina belongs to this group. Diphtheria in the anterior nares gives very few symptoms: a running nose, excoriation at nostrils, snuffles, no fever, is about all. This may go on for weeks, when an extension into the naso pharynx or larynx is manifest by other additional or subjective symptoms. The Germans call this form *diphtheria larvata*, and in all such cases a culture will show the true state of affairs. Ordinary thrush (oidium albicans), can hardly be mistaken for diphtheria, but *diphtheria of the mouth may be mistaken for stomatitis*, and patches of leptothrix are frequently called diphtheria, particularly when associated with tonsilar inflammation, painful and swollen nodes and fever.

Leptothrix patches will be found protruding from the crypts or margins of the tonsils, and are very difficult to scrape away, they also resist the action of various caustics

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to a remarkable degree, and sometimes make repeated scrapings and cauterization necessary.

PROPHYLAXIS AND IMMUNITY.

Although the contagiousness of diphtheria is well established, it must be borne in mind that it is not so readily transmissible as scarlatina and other infections. Moreover, that it can readily be prevented.

At the present time the prevention of the spread of the disease is quite beyond the control of the central government. For information on municipal control, school hygiene, school inspection, isolation hospital, and general and local disinfection, the writer would refer to test-books and monographs, and to his various articles on prevention of the spread of diphtheria and scarlatina.*

PERSONAL PROPHYLAXIS AND THE NASO-PHARYNGEAL TOILET.

The proper management of the naso-pharynx in children and adults is one of the most important subjects in practical medicine.

The naso-pharynx is the usual site of entrance of diphtheria, and to this locality the preventive measures must be directed. In a contribution to the proceedings of the New York Academy of Medicine in 1884, the writer has shown that chronic nasal catarrh, adenoid vegetations, enlarged tonsils and carious teeth, favor diphtheria infection, and that *in the absence of such conditions the instillation of a*

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*In the Transactions of New York Academy of Medicine, 1886; American Pediatric Society, 1890; International Medical Congress, Berlin, 1890; Archives of Pediatrics, 1896.

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weak salt or alkaline solution into the nose morning and evening will prevent diphtheria in those exposed or prone to contract it.

The general practitioner should see to it that in all children coming under his professional care, adenoids, if present, be removed by the post-nasal forceps and Gottstein's curette, that hypertrophic tonsils be resected, and carious temporary teeth be filled or extracted.

The naso-pharyngeal toilet, as advised by the author, consists in the instillation into each nostril by means of an ordinary teaspoon, a spoonful of salt water, 1 per cent, boric acid water, 2 per cent, or listerine, in water, 10 per cent, morning and evening (at bed time and on rising), as the children lie on their backs, with nose tilted up and mouth open. The liquid does not wash through at once; some of it remains in the various recesses of the nasal cavity, and is eventually sneezed out or swallowed. In this way putrescible matter and bacteria are washed away. (Mechanical antisepsis). Where additional chemical antiseptic action is desired a 1-5000 mercuric bichloride solution, or Labarraque's solution, 10 per cent, or a rose-colored permanganate of potash solution should be employed.

The naso-pharyngeal toilet, carried out in the way described, is indicated for (1) all healthy children from one year up, who live in infected localities, and (2) for all healthy children directly exposed to diphtheria infection.

It is also the *best method of local treatment in all cases of diphtheria*, in which instances it should be resorted to every two hours; moreover, it is the most satisfactory *local routine treatment* in all diseases in which diphtheria frequently sets in as a complication, *e. g.*, in scarlatina, measles and

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pertussis; furthermore, it is a necessity *before* and *after* tonsilotomy and all operations on the nose and throat. This method is far superior to gargling, and the writer, after an experience of more than fifteen years with this method, again takes pleasure in recommending it on account of its great value and harmlessness. It has been tested in private practice and institutions, many physicians have employed it—bacteriologists have reported upon its usefulness, and have shown that weak solutions are as efficacious as strong ones.

In many forms of reflex cough, also of tubercular origin, it is far superior to nauseating expectorant mixtures, and in all forms of fibrile disease in which the nasal secretion becomes dry, crusty or hardened, half a teaspoonful of salt water into each nostril affords much relief.

The naso-pharyngeal toilet not only does not provoke middle ear or accessory sinus complications, but, according to the experience of the writer, apparently prevents them.

Immunity. Specific and direct immunity is secured for those exposed to diphtheria by means of *antitoxine. The period of immunity varies from three to six weeks, which is sufficient for all practical purposes in times of epidemics or house infection.* Aside from the reports which come to us from abroad, we have reliable reports from various hospitals for the treatment of children's diseases throughout the country which go to prove the absolute value of antitoxine as an immunizing agent. The immunizing dose is 200 units and all exposed children should receive this quantity.

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TREATMENT.

(*a.*) By antitoxine. (*b.*) Supplementary treatment.

(*a.*) *Antitoxine.* Dosage. Indications.

The treatment for diphtheritic inflammation consists in the *early* and *proper* administration of *reliable* antitoxine, supplemented by the naso pharyngeal toilet. The time for discussing the pros and cons of antitoxine treatment is past; the specific curative power of this remedial agent is an established fact. Behring's claim that if antitoxine be used early the mortality from diphtheria will not exceed 5 per cent, is borne out by the reports of competent clinicians all the world over. Opposition to anything so radically new as Behring's discovery, is one of the associating features in the evolution of scientific medicine. Vaccination and antiseptic surgery stand in evidence of this fact. Any practitioner who studies the collective investigation reports for 1896 and 1897, on antitoxine for diphtheria and croup in private practice, issued by the American Pediatric Society, and fails to use antitoxine because he "*does not believe in it,*" should not be entrusted with the management of a case of diphtheria, and the practitioner who *thinks* a case is mild, and waits for severe symptoms before using antitoxine, utterly fails to grasp the situation, and will frequently be disappointed.

INDICATIONS FOR ANTITOXINE.

Antitoxine is indicated in doses of 200 units for immunizing exposed persons, and in doses of from 1,000 to 2,000 units to combat the disease.

1,000 units for very young children.

1,500 units for older children.

2,000 units in croup cases.

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It should be employed at the earliest possible moment, and the dose repeated the following day and subsequently as often as is necessary. I have given 10,000 units in one week to a child nine months old, and have seen no ill results. The dosage is expressed in units, and not in the serum quantity; the preparation having the highest number of units in the least quantity of serum, and from an *absolutely reliable source*, is to be preferred.

The injections are made in any region where a fold of skin can be picked up—the skin, the hands of the physician and the syringe must be *clean*. Any syringe will answer, but the best syringe is one made entirely of glass, and now obtainable in the shops.

The writer also injects a curative dose of antitoxine in every case of *scarlet fever* coming under his notice, because this disease is frequently complicated with diphtheria, and he also administers a curative dose in case of *measles* and *whooping cough* if the throat shows the slightest appearance of a pseudo-membranous patch. It would appear rational to give an immunizing dose in puerperal cases, where a diphtheria case exists in the same house; also to children on whom an operation is to be done in the nose or throat and where the culture test shows the presence of diphtheria bacilli without clinical symptoms. Antitoxine is also indicated in *diphtheria of the eye*, which is, fortunately, very rare. The more common croupous conjunctivitis is not to be confounded with eye diphtheria, in which the eyelids are phlegmonous and hard.

The antitoxine rash, which is noticed in a certain number of cases has no very characteristic features and may readily be mistaken for scarlet fever or measles rash;

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its appearance is usually not heralded by a rise of temperature and increase of other symptoms.

As regards the combiued use of *antistreptococcic and anti-diphtheritic* serums in cases of mixed infection, no positive advice can be formulated at the present time.

LOCAL SUPPLEMENTARY MANAGEMENT.

The local treatment of diphtheria must be *mild.* Swabbing the throat in diphtheria is harmful, and should not be practised. Solutions used as gargles do not reach the naso-pharynx; the spray is only to be employed in cases in which force need not be used, *e. g.*, in docile children. The best way to cleanse the naso-phorynx is to pour the liquid into the nose from a spoon; if the nose is partly or almost completely stopped up, a blunt piston syringe, or a Davidson's or Fountain syringe, must be employed. In septic cases the irrigation is best done as the children lie on the side in order to avoid any sudden strain and collapse. For the majority of cases, instillation by means of a spoon will suffice. This may be done every hour or two, and if necessary day and night, according to the severity of the case. If syringes are used the stream should be directed horizontally, and not upward. Syringes should not be used if bleeding follows each irrigation.

The following liquids may be employed :

Permangante of potash—rose-colored aqueous solution.

Mercuric bichloride in water, 1-10,000.

Listerine, 1 to 10.

Salt water, teaspoonful to pint.

Lime water.

Alum water, 5 per cent.

Labarraque's solution in water, 1-20.

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Peroxide of hydrogen has shown itself to be an active irritant in the hands of the author, and aids the spread of diphtheria, and should therefore not be used in diphtheria.

Any of the above liquids may be used as a gargle when children are able to gargle. *Excoriations* at the angles of the mouth, and at the nostrils, usually heal under camphor ice.

Antitoxine, with mild local treatment and judicious stimulation, will suffice for ordinary cases seen in good time; but as cases will come under observation, in which valuable time has been lost in temporizing with household remedies, the physician will not be spared the management of various *complications* which will now engage our attention.

Medication. The local antiseptic power of a teaspoonful of medicine, as it glides over the tongue and down the œsophagus, is practically *nil.* The yellow chlorate of potassium and iron mixture, and the mercuric bichloride mixture, will not be necessary where antitoxine can be had, and should under no circumstances be given to a patient with an irritable stomach. As an aid to digestion the following mixture is efficacious:

R.
Fairchilds' ess. of pepsine, oz. ii.
Acid muriat dilut. dr. ss.
Teaspoonful 4 times a day.

In septic cases, 5 drops of the tincture of chloride of iron may be given every four hours.

Stimulation. Whiskey, American Tokay wine, champagne, coffee, strychnine gr. 1-50, three times a day. Camphor, gr. ½ to 1, three times a day. Benzoate of sodium

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and caffeine. dose, grs. 1—3, also subcutaneously dissolved in water. Camphorated oil and ether, equal parts, 5 to 15 drops, subcutaneously. When the stomach is irritable, stimulating drugs can be given subcutaneously or per rectum.

Fever. High temperature can be reduced by cold and lukewarm sponge and tub baths. To give an anti-pyretic drug regularly every two to three hours is very bad practice; one or two doses in twenty-four hours, particularly at night, are serviceable. From 3 to 10 grains of phenacetin with ½ grain caffeine or lactophenin with caffeine in the same dose may be given. Antipyrin is a safe antipyretic, and as it is soluble in water, from 3 to 7 grains can be given per rectum. In cerebral unrest an ice cap is advisable. Quinia should never be given as an antipyretic in any but malarial disease.

Vomiting. In cases of incessant vomiting, stop all internal medication and give only 1 to 2 drops tincture of iodine in sweetened peppermint water every hour or two, or, wash out the stomach.

Diarrhœa. In many septic conditions a mild form of diarrhœa may complicate matters. This can usually be checked, if necessary, by a diet of burnt flour gruel or corn-starch pap, and by omitting milk food for a time. Should this not suffice, 5 grains of tannic acid or tanningen given with chocolate, or ½ grain of acetate of lead with sugar of milk, or ½ grain of camphor with 1-5 grain of Dover's powder will check the diarrhœa.

Albuminura and nephritis are frequent complications of diphtheria. A stiff dose of calomel and jalap, and one or two warm baths a day to promote diaphoresis, will be the treatment in such conditions. In nephritis, with dropsy as a sequela of diphtheria, an infusion of digitalis may act as a diuretic by improving the circulation.

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Convulsions. Initial convulsions indicate intense infection or nervous reflex irritability, for which an enema, a warm bath, and hydrate of chloral, grs. iii., and potassum bromide gr. v. are indicated, per os or per rectum. Terminal convulsions, indicating heart failure and cerebral inanition, give an unfavorable prognosis. A warm bath and stimulants are here indicated: 5 drops of camphorated oil and 5 drops of ether subcutaneously every few hours.

Dry Tongue. The tongue is sometimes so hard and dry that pain and difficulty in swallowing result. For this condition glycerine and rose water, equal parts, applied with a brush, affords relief.

Pseudo-membranous conjunctivitis is occasionally seen in severe diphtheria cases. This readily yields to ice compresses and the boric acid spray. In true *diphtheria of the eye*, in which the eye-lids are much swollen and indurated, antitoxine must be used in large doses. Fortunately, as has already been said, this condition is very rare.

Otitis media, due to an extension of the septic process through the Eustachian tube, is frequently observed, but the earache is not nearly as intense as in ordinary otitis media and rupture of the drum head takes place readily. The ear should be cleansed with mercuric bichloride solution 1.5000, or a warm boric acid solution with cocaine, or menthol in sweet almond oil (dr. j to dr. iv.) should be instilled.

Hemorrhage from sloughing of the tissues is a very dangerous and distressing complication. If possible, the bleeding spot should be located by means of a strong light, and directly cauterized with the actual cautery, lunar caustic, chloride of zinc, alum solution, or antipyrine and tannin. The styptic iron preparations are not so applica-

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ble on account of the large grumous blood clots which invariably form.

Phlegmon and induration of the tissues of the neck, with indistinct fluctuation of cervical lymph nodes, are best managed by a large incision through the entire dense and thick skin down to the glands. The latter are usually in a friable, spongy state with little pus spots scattered through the tissue and can readily be broken up by pushing a blunt director or dressing forceps through the capsule and sweeping it around in various directions in order to break up the necrotic tissue. Make one abscess cavity which can readily be drained by means of iodoform or bichloride gauze under a moist dressing. The neighborhood of such a diphtheritic and gangrenous wound occasionally has an erysipelatous appearance, which usually subsides under the application of cold lead lotion.

PARALYSIS AND ATAXIA FOLLOWING DIPHTHERIA.

Paralysis of the soft palate is not rare. A stationary palate, a nasal voice and food regurgitation through the nose, are the characteristic symptoms. For this condition, as well as for the *temporary locomotor ataxia*, which is occasionally observed, we require fresh air, baths, massage, the interrupted current and 1-50 grain of strychnia, three times a day, by mouth or under the skin. The antitoxine treatment has not made paralysis cases more frequent, nor does it appear to facilitate the recovery from such complications.

A gradual paralysis of the respiratory muscles, including the diaphragm, as shown by a weak cry and rapid superficial breathing, is a very serious condition to deal with.

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In addition to the general treatment just announced, the cold douche and artificial respiration may do good. *Sudden death from heart paralysis* gives no chance for treatment. In all cases of septic diphtheria, early and proper stimulation may prevent it.

The anæmia, which is known to follow in the wake of diphtheria and other infectious diseases, demands tonics such as fresh air and iron. I have publicly protested against the detention of children in ill-ventilated apartments of tenements and flats, by the local health board, for weeks after an attack of diphtheria, and until all bacilli have disappeared from the throat; and I believe the majority of physicians will be of the same opinion on this question. *Broncho* and *lobar pneumonia*, *thrombosis of veins and arteries*, and other remoter complications, will come under observation, and will call for proper management.

DIET.

Milk, vichy, matzoon, koumyss, beef peptonoids, corn starch, custard, icewater, cream, farina, cocoa, eggs, raw meat, burnt flour soup, whiskey, California tokay, coffee, tea, punch, ice, champagne, pineapple juice, somatose.

The diet in diphtheria is of prime importance, the food should be nutritious and digestible.

Forced feeding is proper in exceptional cases, but it is well to remember that children with febrile and septic disease have little desire for food, and that the stomach will resent all attempts at over feeding. Somatose is an ideal soluble meat without taste or smell, and can be given without cocoa, milk, gruel, rice, etc.

For *rectal alimentation* we inject a mixture of whiskey, egg yolk, beef peptonoids, warm water.

Gavage will be mentioned in the chapter on croup.

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CROUP.

In practice we recognize (1) a *croupy cough*, without stenosis; (2) *a catarrhal or pseudo-croup* with dyspnœa, and (3) *true croup*, in which the stenosis is progressive and frequently necessitates operative interference. The croupy cough is common in children with adenoid vegetations, follicular pharyngitis or large tonsils; it usually begins at night and yields to the mildest treatment. A cloth wrung out of cold water around the neck, salt water dropped into the nostrils and a hot drink is all that is necessary for the time being with subsequent curettage or cauterization of the swollen follicles in the pharynx. Emetics are not indicated, although very popular with that class of parents who delight in goose grease and turpentine.

As a type of *pseudo-croup* with dyspnœa, the croup of measles is characteristic. Here we have to deal with catarrhal laryngitis or œdema of glottis, which rarely goes on to complete stenosis; the treatment is the same as for "croupy cough." Only in extreme cases will local scarification of the œdematous tissues or intubation be necessary. The so-called *true croup* is either a primary membranous laryngitis or is secondary to diphtheria of the naso-pharynx. *In primary membranous croup the pharynx is pale, and the temperature normal, and the onset is never sudden; hoarseness, aphonia and stenosis come on gradually*, whereas in pseudo-croup the on-set is generally sudden, the pharynx is usually congested and there is fever.

About 80 per cent of membranous croup cases are known to be cases of Klebs-Loeffler diphtheria; in about 20 per cent this bacillus has not been found. True croup should, therefore, be quarantined as diphtheria.

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The secondary croup with stenosis is either due to an extension of the membranes downward or to the swelling and œdema of the tissues adjoining a diphtheritic patch. Urgent laryngeal stenosis, secondary to various forms of nose and pharynx diphtheria, is, therefore, *not necessarily membranous*, but the treatment is practically the same in both instances.

Treatment of croup with urgent stenosis. Before the advent of antitoxine the best treatment for true croup, before operation, was *mercury or calomel*, internally, by inunction or by fumigation, and it is well known to experienced physicians that intubation and tracheotomy gave better results when mercury had been administered. Mercuric bichloride, gr. $\frac{1}{32}$, was given every hour for one to two days, or 20 grains of calomel were volatilized over a lamp, under an improvised tent, every three hours for twenty-four to forty-eight hours. The spray and croup kettle have very little value, and emetics in any shape are productive of evil. I have never seen membranes dislodged by emetics, except in instances where they came from the pharynx or surface of the epiglottis, and I am positive that they sap the strength of the patient. Now that we have specific treatment we will not discuss in detail our former management of croup cases, because the best treatment of croup, before operation, can be mentioned in one word—*antitoxine.* Here, again, I refer the skeptic to the report of the American Pediatric Society on laryngeal stenosis, which tells the whole story, reflecting, as it does, the experience of hundreds of physicians, and sifting the evidence in a judicial manner. Briefly, the report says: Before the use of antitoxine 27 per cent of intubation cases recovered; now 73 per cent recover. Sixty per cent of stenosis cases do not require operation if anti-

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toxine be used in time, and an early use of antitoxine will lower the mortality of intubation cases still more.

The writer's personal experience can be summed up in a few words. Tracheotomy and intubation cases, before antitoxine, 280 cases, 30 per cent recovers ; 17 intubation cases, with antitoxine, 3 deaths. Over one-half of all laryngeal cases, treated with antitoxine, recovered without operation. In every case of acute progressive stenosis 1,5000 to 2,000 units of diphtheria antitoxine, should be administered at once, and the dose may be repeated in twelve to twenty-four hours, and so on, until relief is manifest. As soon as the stenosis becomes less urgent, and the cough somewhat loose, the main danger is over, and camphor, gr. ½, or spir. ammoniæ, aromat., gtt. x., may be given as an expectorant and stimulant, four times a day. The same management should be resorted to in urgent stenosis following scarlet fever, measles, pertussis or naso-pharyngeal diphtheria, or so-called tonsilitis, together with the naso-pharyngeal toilet, as before described. When antitoxine fails to check a progressive stenosis, the time for operative interference is close at hand. The proper time for the operation is a matter of experience ; the physician should not wait until the patient is cyanosed and the pulse intermittent.

Intubation is the art of introducing tubes into the larynx and removing them at the proper time. In combination with antitoxine, intubation is one of the greatest blessings at the disposal of the physician. *Dr. J. O'Dwyer* of New York, is the inventor of our present method of tubing for croup. The instruments he devised have been in general use since 1886, and although a number of modifications have been suggested, none has come to the writ-

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er's knowledge which is any respect an improvement on the original method with the exception of Denhard's gag, which is universally used. Many of the modifications are useless and bad. The operation of intubation and extubation is not, in itself difficult; but everyone contemplating becoming a safe operator should practice the operation on the cadaver. Its *modus operandi* cannot be learned from text. In the course on intubation, given under my direction by Dr. Wm. C. Guth, at the New York Post-Graduate Medical School, I have found that only colleagues, with a short and thick index finger, have great difficulty in learning to tube properly.

It may be in place to dwell briefly upon some important points as regards *feeding and medication, duration of wearing the tube, intermittent intubation, the management of cases where the tubes have been coughed up, secondary stenosis from cicatrix, granulations or œdema, selection of special tubes for œdema of epiglottis and venticular bands, retained tubes, etc.* A new, or a newly plated tube, should be used for each case. If the operator be in doubt as to the proper size, the smaller size should be chosen. The tube may be disinfected immediately before using, in boiling water, and a minute quantity of iodoform ointment may be used as a lubricant. When the tube is in the larynx, and not blocked by detached membranes, a characteristic moist rattle will be heard as the air is forced in and out in respiration. Before removing the gag the left index finger is rapidly passed to the head of the tube to determine positively that the tube is in its proper place, then the string and finally the gag are removed. It is best not to use a string which is too strong to be broken, for in case it should become wedged in its eylet, the string may be broken

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away with the index finger at the head of the tube to prevent dislodgement.

If a detached membrane has been forced down, the child will become more cyanotic, whereupon the tube should be pulled out by its string and reintroduced after the detached membrane has been expelled by coughing. If a tube is coughed up after having been in the larynx a day or two a re-introduction is not necessary until urgent symptoms demand it, and if a child has great difficulty in swallowing food, the tube may, in exceptional cases, be taken out once a day for the purpose of proper feeding. The writer many years ago suggested intermittent intubation for purposes of feeding.

Feeding. Some children will swallow liquids without difficulty, others will swallow semi-solids best, such as custard, scraped meat, ice-cream, sponge cake soaked in milk, hard yolk of egg, farina with egg or somatose, matzoon, ice. Most children will swallow well in the dorsal-horizontal posture. Forced feeding by means of a tube (Gavage) may become necessary, the tube being introduced through nose or mouth.

Medication. Stimulants, heart tonics, antipyretics can be given with the food or subcutaneously or per rectum. Tubes may be removed after two, four or six days. Antitoxine has shortened this period very much. When it is noticed that a greenish muco-pus is coughed up through the tube it is time to remove it. To avoid pressure-necrosis, a tube should not remain longer than six days. A case of cicatrical stenosis was reported by the writer at a meeting of the American Pediatric Society, Montreal, May, 1896, but in his own experience no such accident has occurred. A moderate secondary stenosis after the re-

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moval of a tube may be relieved by a few 5-grain doses of antipyrin.

Retained intubation tubes. A stenosis which occasionally persists in intubation cases is usually the result of traumatism, *i. e.*, laceration during attemps at intubation, and pressure-necrosis from badly constructed tubes too long in the larynx and roughened by calcareous deposit. Cicatrical stenosis or granulations will be found at the entrance of the larynx at the base of the epiglottis. In my own cases such a distressing complication has not happened, but two such cases have come under my notice, in one of which there was also obstruction due to granulation tissue and œdema in the subglottic region. Such cases require expert management, and each case will need its own treatment. Hard rubber tubes for long wear, built-up tubes with extra large heads and large retaining swell are called for. Accessible granulations may be removed. Superficial granulations may be attacked by coating the tubes with gelatin and alum or tannin, as suggested by O'Dwyer. In some cases tracheotomy must be done, with subsequent local treatment and dilations. Specially built-up tubes are also used when swollen tissue overrides the head of ordinary tubes in primary intubation.

Secondary stenosis, after intubation, due to abduction paralysis, has been reported, but lacks confirmation. Antitoxine and intubation combined have given such brilliant results in croup that tracheotomy is now rarely performed in this country for diphtheritic stenosis. In certain cases, however, it may be employed in preference to intubation. Such a case was reported to the American Pediatric Society by the writer, in 1889 (Transactions, Vol. ii). It was a case of diphtheritic croup in a girl of

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twelve. In listening to the noisy respiration a loud "flap" sound could be heard, which indicated a loosened membrane. Tracheotomy was done in preference to intubation, and a large and dense membrane was readily removed through the tracheal opening. The child recovered. A rapid tracheotomy may become necessary if, in the act of tubing, the stenosis should suddenly become complete. This accident has happened to the writer in tubing an adult for stenosis of several weeks' standing and of unknown origin. The tube struck a subglottic vascular new growth, which bled freely into the bronchi. A rapid tracheotomy was performed, and the hemorrhage fortunately arrested, the patient making a complete recovery. Intubation in the adult is a difficult and rather unsatisfactory procedure. In diphtheria cases with great swelling of tonsils, uvula, and at entrance to larynx, tracheotomy would probably be the most satisfactory operation.

Tracheotomy is not a difficult operation, but is, as a rule, an unpleasant one. In performing the operation the surgeon is usually fortunate if one trustworthy assistant is at hand, who is expected to administer the anæsthetic and assist at the wound as well. Now, if the patient is in any way troublesome, as is frequently the case, the operator may not be able to proceed with the necessary ease and facility. In such a case the author's *Automatic Retractor* will be of service; it will keep the edges of the wound well apart; it may be hooked into the fascia as the several layers are divided, it will hold aside such blood vessels as are in the way of the knife, and may finally be hooked into the edges of the tracheal wound, the trachea may be examined at leisure, and there need be no haste in getting the tube into its place.

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The instrument devised many years ago consists of a rubber band to each end of which is attached a curved double hook of nickel-plated steel. It can be used as a general retractor in operations requiring careful dissections in different parts of the body ; but it is especially applicable to the neck.

The rubber must be renewed occasionally.

With a bottle, wrapped up in a toweling to act as appropriate support, at the nape of the neck, and the child under chloroform, an incision is made about two inches long, from the superior border of the thyroid cartilage, downward. The best guide is the cricord ring, which is the most prominent part to be felt in children. After the skin has been incised the superficial fascia is divided on a director, and the presenting veins are held aside by means of the author's retractor. To get at the three upper tracheal rings above the thyroid isthmus, we make a transverse incision into the deep fascia where it inserts into the cricoid cartilage (Boze's point). This done the deep fascia, and with it the isthmus of the thyroid gland can be pushed downward with any blunt instrument, and enough space gained to open the trachea. The trachea can also readily be reached below the isthmus of the gland by means of blunt preparation and by the aid of the automatic retractor, there being little else but fat and dilated veins presenting in this region. In opening the trachea we cut from below upwards, and do not plunge the knife into the trachea with any force so as to avoid injury to the posterior tracheal wall. After membranes and secretions have been expelled by coughing, the tube is introduced and secured by a tape around the neck. The tube is removed at least once a day and cleansed, and should not be discarded until the patient

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is able to breathe for days with the inner tube out and the outer tube closed with a cork.

To cleanse the tracheotomy wound with the tube *in situ* the writer attaches a rubber tube six inches long to the tracheotomy tube, and uses a strong spray of any desirable antiseptic solution; the attached rubber tube prevents the spray fluid from entering the trachea, and permits breathing at the same time. When there is much difficulty in expectorating the secretions, a few drops of salt water occasionally dropped into the trachea through the tube, will facilitate their expulsion. Feeding and medication present no difficulties. Secondary granulations are excised or cauterized, and intubation may be done to discard a tracheotomy tube in difficult "decanulement."

DISINFECTION OF THE SICK ROOM.

The general principles involved in the prevention of infectious disease are not complex:

1. Isolation of patient, and avoidance of sick-room.
2. Disinfection of rooms and contents by steam or chemicals, or by cleanliness and sunshine, personal disinfection and prophylaxis, including fortifying the system.
3. Ventilation to prevent concentration of poisonous matter.

The management of diphtheria and scarlet fever in a private house according to these principles is not difficult. The patient is isolated in a clean room, bare of all but the necessary furniture. A hall bedroom, or one on the top floor, is to be preferred. In some instances it may be advisable to keep the patient in the ordinary bedroom occupied at the time of taking sick, and quarantine, in the best manner possible, this floor of the house already infected.

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The well children are to be kept from school and church. Where the intercourse of parents with a sick child cannot be avoided, even when trained nurses are employed, it may become necessary to isolate the well children. Food and drink not consumed by the patient must be burned or disinfected in a slop jar holding chlorinated soda solution. Dishes should be rinsed in soda solution, 5 per cent., and a sublimated solution 1.100, before returning them to the kitchen. As dried sputa are liable to spread through the air, all expectorated matter should be received by rags or paper spittoons, which are to be burned, or into a jar holding a sublimate solution, 1.1000. The sick room should not be swept with a broom, to avoid raising dust. For cleaning purposes employ moist rags, which are to be burned. Urinals, bed-pans and faæces are treated with quicklime, bichloride solution, 1.1000, or Labarraque's solution.

The nurse should not eat or drink in the same room with the patient, and before going to meals she should clean her hands and arms with green soap and sublimate solution, 1.1000, and put on a clean, long, loose gown, which hangs outside of the sick-room. During the period of desquamation, the patient should receive a daily bath of tepid water containing green soap. At the termination of a case the nurse takes a bichloride bath, 1.2000 and washes her hair with the same solution. In case of death, the body is to be wrapped up at once in a bed-sheet soaked in mercuric bichloride solution, 1.1000, and no public funeral is to be permitted. The sick-room and all objects in it must be disinfected. Hard finish or painted walls and ceilings and floors may be washed or sprayed with disinfecting fluids. Papered walls may be rubbed down with a

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damp cloth or bread crumbs; or, better still, the paper should be removed. A fresh coat of kalsomine or white-wash is advisable whenever it can be applied. After disinfection the windows must be kept open day and night for several days. Carpets, upholstered furniture, and other articles, can be disinfected by steam through the Health Board, or at private disinfecting plants.

Recently Formalin vapor has been extensively used for disinfecting sick-rooms and their contents, and, as far as my experience goes, I consider it to be a powerful disinfectant far superior to sulphur. Formalin vapor is generated in an apparatus which permits the gas to be discharged by means of a tube through the keyhole into a room which is otherwise tightly closed. Quite recently Formalin lamps have been introduced by Shering & Glatz, of New York, for use in families, in which Formalin is generated by heating tablets of para formaldehyde over a lamp.

In regard to the question as to when it will be safe to send children who have had diphtheria back to school, we should judge by the culture test. Whenever this test cannot be employed we should wait at least three weeks from the disappearance of clinical symptoms, during which time the naso-pharyngeal toilet should be diligently carried out.

753 Madison Ave., N. Y. City.

DISCUSSION.

Dr. H. A. Crandall—It seems to me almost useless to add anything to such an excellent and exhaustive paper, which covers the subject so completely. If we can can carry

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away the points given, it seem to me we shall be in a condition to cope with any case that comes up. The very name "Diphtheria" strikes terror into a community. We find the disease existed in the early ages of Hypocrates and Homer and through the 16th and 17th centuries. All we can find in regard to the ancient treatment was the use of an ointment as a prophylactic which was placed upon the throat—sulphate of copper and honey; this was supposed to be a preventive or a cure for the disease. For a long time this ointment had a place in our pharmacopœia. In 1820 thorough investigation of the subject was made and diphtheria and croup were considered one and the same disease. The theory was that without inflammation and the deposit there was no diphtheria; with inflammation but with no deposit there was no diphtheria, but both existing, it constituted a true case of diphtheria.

In regard to treatment—it is divided into hygienic, dietetic and medicinal. Referring to the hygienic treatment the patient should be placed in an upper room with sufficient ventilation in it, not a draught of air, but enough to afford sufficient ventilation and still give sufficient warmth so that there would be no trouble in that respect. The patient should be kept in a warm condition. In regard to diet I think milk is one of the best in the long list of articles that was presented. As to medication I think myself we have not yet found any medicine which is of great service in this disease, but still we can do very much by dietetic and hygienic treatment. I think one of the causes of the spread of the disease is public funerals; health officers should forbid them entirely. The quarantine should be strictly observed. If any one removes the quarantine sign there is a law providing punishment for that offence.

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Dr. C. S. Caverly—I ought to apologize for taking time to discuss this very excellent paper. The importance of the subject induces me to say a few words. I commend the whole paper to everybody. As a fact it is difficult to make diagnosis between tonsilitis and diphtheria, and between croup and diphtheria. Those two elements I would call attention to and particularly the necessity of keeping the poison in one place when you find you have got the disease. The question of making a diagnosis between follicular tonsilitis and diphtheria is one that the bacteriologists have rather claimed they could settle and nobody else. But there is liability to mistake in the diagnosis.

All cases that are suspicious should be treated as diphtheria, medicinally, and from the standpoint of the hygienist. They should be isolated and quarantined. As a member of the State Board of Health I hear that question raised, and of the hardship imposed upon people by a quarantine. There is no question but what diphtheria will break out in spots here and there, but the only way that a physician can do his duty to a patient and to the community is to keep the disease isolated. Cases of true croup must be treated as diphtheria. I have in mind the case of a very excellent man who called me to see one of three children at that time very sick with croup—the child was moribund when I saw it and died very soon after.

His father-in-law asked me if I thought there was any danger to the rest of the family ; I told him I thought there was great danger, and that precaution should be taken. Within a week I heard that the other two children were dead and that his servant girl and wife were both very sick. There was an instance of a man well posted in his work who knew all that most practitioners know about

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diphtheria and disease in general but he considered croup a comparatively harmless affair and had always considered it so.

It is a very treacherous thing and very difficult to make a correct diagnosis of, and where there is any question the croup cases should be treated and managed in every way like diphtheria.

In regard to keeping the poison in one place. The true secret of managing a diphtheria epidemic or outbreak is to keep the poison where you can put your hands on it. Put the patient in a room and keep him there, and everyone coming in contact with the case keep them there. Do not let them go about the house or premises to scatter the germs. When the suspected patient is put in a room, everything should be taken out of it as far as it can possibly be done—anything that can be affected. There is no doubt that the only way to successfully combat the disease is to keep the poison where you can handle it and not let it get away from you.

Dr. H. R. Wilder—I have been much pleased with the paper, and the remarks of Dr. Caverly. It has been a source of great inconvenience and trouble where I had some cases that were diagnosed as follicular tonsilitis, to secure isolation of the patient. There is no doubt in my mind that cases of inflammation of the tonsils should be kept isolated from the first. You do not know what is going to develop. If the physician has any doubt at all it is his duty and it is the duty of the public health officer, to give the public the benefit of that doubt. I have a case in mind I should like to get the opinion of the Board of Health in regard to. It is a case in the vicinity of undoubted cases of diphtheria, so claimed by all the physicians of the town—a case which is supposed to be folli-

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cular tonsilitis—the child was taken with vomiting and fever, with enlargement of the glands of the neck, with a slight fever; the membrane upon one tonsil gray and swollen, and inflamed tonsil; the child is not in a dying condition but I believe will die. Now in view of the presence of diphtheria in that immediate vicinity, what, under such circumstances, is the duty of the health officer?

Dr. Crandall—I would like to ask the president of the State Board of Health one question. Yesterday it was reported to me that there was a suspected case of diphtheria in South Burlington. Dr. Grinnell was confident it was diphtheria and sent one of our younger physicians to attend the case. He reported that while the case was suspicious it was not enough so to apply quarantine. What is the duty of the health officer in such a case as that?

Dr. Caverly—You will find the law reads in substance that any physician who knows or suspects any such case shall report it to the health officer.

Dr. E. B. Watson—I can add nothing to what has been said except to emphasize the points presented by Dr. Caverly in view of an experience I had recently in my own town. We have there five cases of diphtheria, everyone of which came to us from adjoining towns from cases which were pronounced not to be diphtheria, or from cases just recovering. One of the neighboring children died of membraneous croup. No restrictions were made by members of the family. A sympathetic lady friend of the family went there and decorated the little casket with flowers; she had a young child she could not leave at home and took it with her—that child soon came down with sore throat. Within a week's time I was called to attend the

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father, who also had sore throat. It proved to be diphtheria beyond question. This is a case where neglect in the first instance caused the trouble. The other two cases arose from the indiscreet traveling about by persons with suspicious sore throats. These cases illustrate the great necessity of precaution on the part of attending physicians and of local health officers.

Dr. Charles P. Newton—To whom do we report such cases where there is no health officer? What should be done in such a case? We have no health officer.

Dr. Caverly—In such a case you can report to the secretary of the State Board of Health. What town do you refer to?

Dr. Newton—Underhill.

Dr. W. S. Nay—I will say that I was the health officer of that town and have had to sue the town for payment for my services. When they refused to pay me, I resigned the office.

Dr. J. W. Jackson—The paper was a very interesting one to those who have passed through a diphtheria epidemic. There is a great deal of the disease about now. In Barre, Northfield, Williston and some other places there has been a great deal of it during the last two months. I heard there were twenty-two cases in Northfield; in twenty antitoxin was used and there was only one death in the whole number of cases. Another physician who does not believe in antitoxin has lost several cases. In the Barre cases there has been a great deal of hesitancy in pronouncing them diphtheria. But I believe in what has been said that the public should be given the benefit of the doubt and cases should be kept isolated. The trouble there is that the foreign element do not and will not un-

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derstand the necessity of isolation. Among the Italians there is great difficulty in enforcing the regulations of the Board of Health. It has been very interesting to me to watch the progress of cases and the successful results obtained by antitoxin. I think it will give us still more confidence in these remedies and help us to keep up with the progress of the time.

Dr. C. E. Allen—Antitoxin used in immunizing doses will protect a person or patient I think for about six weeks. Whether you use antitoxin or not you are bound to have a certain number of deaths. Why would it not be well to have a legislative enactment that we should use antitoxin, the same as we use vaccine virus to immunize a community. Make it obligatory. Many lives would be saved and you would stamp out diphtheria much quicker than to wait until the disease starts and then use antitoxin for its curative effects.

Dr. H. R. Wilder—I was very much struck with a mecurial treatment of diphtheria and have had experience with that in the treatment of membraneous croup, and next to antitoxin I believe it is *the* remedy. I recollect one case very well where I was first called and found a boy dying from an undisputed case of diphtheria. He was in a septic condition and died before I returned home. Immediately following, a child about two years of age was taken with the laryngeal form without any evidence whatever of any sore throat—what some people might have said was a distinct disease but which we as physicians consider as only a different form of the same disease. That case I treated as I have two or three others before, successfully, by an endeavor to salivate it, treat it on the same principles as the person I wish to salivate. Put in

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all the mercury possible; in some cases I was obliged to use mild opiates to help control the bowels against the effects of the mercury to get some positive effect from the mercurial treatment. In this case the young child was sick ten days; it seemed each day it must soon succumb but finally it would throw off some portion of the membrane; never extensively, but sufficient to prove the diagnosis of the case, and then it would seem to be failing for several days, and finally the child gradually improved. But in connection with all this, I have made it my practice to use lime water steam; slaking lime. I always secure abundance of lime and slak it in the room.

With the use of mercury I believe I have saved a number of cases. In three distinct severe cases of membranous croup, where I was called, I used these remedies and I attributed their recovery as much to this as when I use antitoxine I attribute the recovery to that.

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The Uterine Curette in the Country.

By W. E. Lazelle, of Plainfield.

It is not within the radius of this paper to give you an exhaustive scientific treatise on the subject of uterine curettage, nor have I that to say with which you are not already familiar. But having frequently noticed in medical journals articles strongly denouncing the general practitioner who presumes to use the uterine curette, I feel roused to protest against their aggressive tendency, for all women are subject to those conditions in the treatment of which the curette is indicated. Some women have the misfortune to live in the country, remote from specialists' skill. These women, like their favored sisters, deserve treatment, and naturally apply to their family physician. They expect, also, an equal amount of benefit, and should receive it, notwithstanding the statements of certain specialists in gynecology, to the effect that the curette in the hands of the country practitioner is a dangerous instrument and productive only of irreparable injury.

We operate under very unfavorable circumstances, we have no skilled assistants, and many times are several miles from a brother practitioner. I rode four miles in the rain one night last November, gave ether, and employed the curette in a case of severe hemorrhage due to retained membranes, and the only assistance at my command was the pale, trembling husband who was a farm-hand. This

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woman made a perfect recovery, in spite of the warnings we so constantly receive from our superiors not, in striving for fame, to attempt operations involving great risk to human life and obviously beyond our depth. One man cited a case to emphasize the fact that it was best to leave the operation of uterine curettage to those in whose specialty it belonged, proving to himself that men of no special surgical training should refrain from attempting operations of gravity. Is he not too willing to generalize, and has he the right to draw a general law from a special case, and to infer that what he has seen to be true of one case, is true of the whole class to which they belong? We do not claim to be faultless operators, we admit mistakes and reverses in treatment; and in the little I have seen of specialists' work, I have yet to learn that they do not make mistakes. I once saw an eminent surgeon cut off a perfectly healthy appendix. 'Twas all right, he was a specialist, he was beyond criticism. Before the same class another specialist, in the operation for the removal of an abdominal tumor, failed to ligate vessels in the omentum. The autopsy revealed the abdominal cavity filled with blood. I did not infer from this that these men should not attempt operations involving great risk to human life, for to generalize correctly, one should take into consideration the number and character of the instances about which he reasons.

Another said he did not object to the general practitioner using the uterine curette, but he should do it only with clear ideas of what he wished to accomplish, and after having had that amount of experience with surgical work, which had developed a habit of securing and maintaining strict asepsis. No man ever attempts any opera-

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tion without a definite object in view, neither does he prescribe drugs without a clear idea of what he wishes to accomplish. Supposing his objection did have any material bearing upon the management of the case, would you think it expedient to delay an operation in order to secure his approval? Take for instance the following case, which occurred very early in my professional career: I was called late one evening to see Mrs. F., who had been three weeks sick in bed, and was under treatment by another physican in town. She had had several chills, and carried a temperature that evening of 103°. She looked sick to me, and being my only patient I didn't care to lose her. She gave the history of miscarriage at the beginning with constant hemorrhage, accompanied by a very offensive odor. She said she had been doing well until within a week, when her physician informed her that pueumonia had developed, which was responsible for her chills and fever. An examination of the chest showed pneumonia to be absent. Digital examination per vagina showed vagina hot and dry, uterus large, or soft, partially open and emitting a black bloody discharge of very offensive odor. I told the family there was no pneumonia present, but the woman was suffering from the retained products of conception, and her chills, fever, etc., were the result of absorption of dead matter within the uterine cavity. I explained to them that the treatment consisted in the removal of this foreign matter, which could be done by operation only, and which I thought would save the woman's life. They told me they were willing to submit to whatever treatment I advised. Accordingly on the following morning, after having strictly observed every detail relative to surgical cleanliness, I gave ether, shaved the external parts,

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washed the vagina in 1-2000 bi-chloride solution, placed the woman in Sim's position, engaged the husband, who was a carpenter, to hold the first Sim's speculum he ever saw, drew the uterus down with tenaculum, thoroughly dilated os, with heavy steel dilator, and with a sharp curette scraped the interior of the uterus clean. I then irrigated the uterine cavity with plain boiled water, and swabbed the uterus with tincture of iodine. I gave this woman a teaspoonful of fluid extract of ergot, in order to contract the uterus and check hemorrhage. In twenty-four hours her temperature had fallen to nearly normal, and from this time she made a speedy and uneventful recovery.

I illustrate this case, not thinking that it contains anything new or novel as regards pathology or treatment, but as one of the many similar instances occurring in every country practice; and the man who is not qualified to perform this little operation skillfully and scientifically, is not worthy of his degree.

In retained decidua; in septic diseases of the uterus; in chronic catarrhal endometritis, with persistent leucorrhœa; in cases of membranous dysmenorrhœa; in catarrh and leucorrhœa of the cervical canal; in menorrhagia and metrorrhagia due to small polypii or fibroid tumors; and in sub-involution and retro-displacements of the uterus, in which a fungous degeneration of the endometrium exists, the curette is indicated.

No country practice is exempt from these conditions and many of them are of common occurrence. What then remains to be done with these cases, if the country practioner is not allowed to treat them? Shall they go untreated, and must the country physician always remain at

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the foot ; or will not the progressive physician strive to acquire the proficiency necessary to treat these patients who are unable to visit specialists, or avail themselves of the specialist's skill.

DISCUSSION.

Dr. E. M. Pond--The subject of the use of the curette is one which interests all of us. There is hardly a day but we are called upon to perform an operation with its use. We may divide the use of the curette into two fields, first that for chronic conditions and second that for acute. The chronic conditions may include those that are involved in the acute condition. The operation should be conducted with all the details of a major operation. The parts should be thoroughly cleaned externally as well as internally and all the preliminaries for operative procedure should be insisted upon. The position I like best is the lithotomy position. We must consider the gravity of the situation when we are called upon to see a patient who has lately been delivered. She has a chill, high temperature and is in a critical condition. We must consider first of all the gravity of the case; it is a matter of life or death. In those cases the curette should be dull—I think the sharp curette is dangerous. The dull curette should be used and very gently carried over the inner surface of the uterus; sometimes the wire lip is advisable, sometimes simply the dull curette. It should be moved over the surface of the uterus and the operator should be very gentle in every manipulation. The uterus should be washed out with a solution of bi-chloride. That procedure

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can be illustrated by a case I had two or three weeks ago; the patient had been delivered three or four days before I saw her and was doing well until that morning. Suddenly there was a chill and a rise of temperature; the pulse was 160 or 170, temperature 107; the uterus was flabby and large and there was a large amount of secretion oozing out. I gave her ether and very carefully went over the surface of the uterus with a dull curette, irrigated with weak bi-chloride solution and packed the cavity with iodoform gauze. The following morning the gauze was removed and the patient made good recovery.

We have another class of cases, menorrhagia and abortion. Before the fourth month I think the sharp curette may be used to advantage. As a preliminary the forceps are valuable to remove parts that would be difficult to remove with the curette. We have another class of cases, those that follow abortions; the sharp curette is advisable and should be used with enough force to remove the unhealthy tissue and reach the muscular structure. In my experience I never had a bad result except once. I saw one case of puerperal septicaemia, it was very interesting; it was eight days after confinement; the temperature and pulse were high and I advised the ordinary procedure. I found the cervix and uterus covered with a membrane and I used the curette very successfully.

Dr. C. W. Strobell—The use of the curette in country practice should be confined to puerperal cases in the vast majority of instances that call for its employment at all at the hands of the general practitioner, for the very obvious reasons that the multiform and various duties of the physician in outlying districts tend primarily and inevitably to develop the general practitioner and not the specialist, and

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there is no class of diseases that more requires the special concentration of all the faculties than those set apart and included in the department of gynecology. In this I think I shall be supported by all unprejudiced minds. The cases of acute and chronic disease falling into the hands of those outside of the large centers of population are too few in number to develop the requisite degree of diagnostic ability and surgical skill, not to mention the scarcely less important matters of armamentarium, suitable environment and leisure absolutely necessary to successfully cope with this class of diseases. And this is true of the minor no less than of the major operative cases, as what may seem comparatively minor or trivial may be mere symptoms dependent upon pathological conditions of the greatest vital concern to the patient. To illustrate—curettement of the uterus for the cure of what appears to be purulent endometritis but which is in reality only a phase of gonnococus invasion with pyo-salpingytis, the uterine ends of tubes as yet remaining unsealed, the pus draining into the uterine cavity; to curette such a case would be to a high degree unsurgical and dangerous and yet how expert must be the diagnostician to palpate even a normal tube to say nothing of the complex conditions present in such a case. *All* pus tubes are not distended with their contents, presenting distinct tumor. A number of similar illustrations might be cited to carry this argument and I repeat again my proposition that the uterine curette in country practice should be confined to puerperal cases and should always be dull. The addition of this with reference to the dull curette makes the whole a safe working proposition, the correctness of which I think cannot successfully be controverted. In addition to that, the

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reader of the paper spoke of etherizing the patient for the curette operation ; I think it is unnecessary ; the os is dilated and the patient bears without much discomfiture the very slight pain attendant upon the operation. If it is done with dull curette, it is painless ; I think that should always be used. In the case the doctor cites I think he came out remarkably fortunate ; it was evidently a case of sapræmia and the patient in a dangerous condition ; to use the sharp curette in such a case is very dangerous.

Dr. G. B. Bullard—I am informed by the best gynecologists it is unsafe to ever use a sharp curette.

Dr. L. M. Bingham—When doctors disagree, etc. I have been asking myself who is the country practitioner? I do not consider myself a country doctor ; I was born and brought up in the country and practice in the country, literally speaking. If a man has the brains, push and determination, with the literature on the subject at his disposal today, he can do curetting in the country just as well as anywhere else. A good deal has been written upon this subject in our medical journals, and there is no doubt that when properly carried out the operation produces grand results ; there is no doubt a great many lives have been saved and many women made much happier by its use. If the process is fully understood and a man knows what he is about there is no danger in using a sharp curette. The trouble in using an instrument in the uterus at all is a septic condition. The time was when we were criminal if we introduced a sound into the uterus because we had produced septicemia and the woman had died just from our negligence ! To-day there is no danger if a man carries out his antiseptic precautions and goes on with the work as he ought to ; he must not forget any of the details ; he must not only look after his hands,

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his instruments and everything else, but prepare his patient as well in that case as in the case of amputation of the breast. If a man can successfully amputate a breast he can successfully curette the uterus or perform any operation within that field. He can do better after he has had considerable experience. There are several things to be thought of in relation to curetting, particularly in preparation of the patient; you ought to be able to make an examination and see if you have anything beside the ordinary condition of diseased uterus. If you cannot make a correct diagnosis better let it alone. The only way to proceed is to know what you are about and there will be no trouble whatever. It has been my custom to mop out the uterine cavity with an absolutely pure carbolic acid which will destry any germs that may be there; then I pack it with iodoform gauze, sterilized.

Dr. Warren—How strong carbolic solution?

Dr. Bingham—Pure carbolic acid. Then I let the gauze remain there two days and let it moisten up so that I can extract the gauze without producing hemorrhage.

In regard to this being a specialty, I do not think the general practitioners in the cities call upon a specialist to do curetteing, but specialists do it because it comes in the line of uterine diseases. With reference to the remarks of the gentleman who last spoke in regard to the danger of curetteing the uterus where the tubes were dripping into it—if you start out to treat it you will in many cases cure the tubes so that you will not require an operation for their removal.

Dr. Bullard—I agree with all that has been said on the subject but I still repeat my warning, look out for the sharp curette.

Dr. W. S. Nay—I think the timid country practitioner is under obligation to Dr. Bingham and others for the sug-

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gestions they have made. There are a great many things that used to be set up as wonderful, and that ought not to be attempted by the country physician. I think it is the duty of the country physician to treat all these cases and not give them up or think they must of necessity be sent to a specialist.

Dr. Strobell—I think the mistake was in the title of the paper, for we are all, to an extent, country physicians here in Vermont, and any man who can do such operations should certainly go ahead and do them. I agree with the opinion expressed that the sharp curette should not be used.

Dr. H. D. Holton—There are some cases which cannot go to the specialist; patients are unable to afford to go away and be treated by a specialist, and they should have treatment at home.

Dr. Lazelle—When I prepared this paper I did not propose to illustrate every case in which I had used the uterine curette because I did not think any of you would want to hear it. It would be presumption in me to tell every such case I have had. I cited that one case to establish the point that it was possible for the country practitioner who lived in a town of nine hundred inhabitants to safely curette the uterus, getting a safe result. I have had equally good results in my other cases. I use the sharp curette every time and I shall continue to use it. I have seen eminent men perform the operation and they invariably use the sharp curette ; I do not think there is as much danger in the sharp curette as in the dull ; you can handle the sharp instrument lightly and receive very good results; I think it is much safer than the dull curette. I never had any serious trouble from using the sharp curette ; I have two dull curettes that I will give anyone who wants them.

Dr. Bullard—All right, I will take them.

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Address on Medicine.

By Henry D. Holton, A. M., M. D., of Brattleboro.

Mr. President and Gentlemen of the Vermont Medical Society:

The profession has of late been frequently congratulated upon the wonderful progress made in the last twenty years, especially in the science and art of surgery.

The operations which have been made possible by anesthesia, more recently supplemented by antisepsis have made successes in the last two decades of what otherwise would have been failures.

The laparotomies for various diseases and injuries have undoubtedly added many years of valuable life to the sum of human existence. The fact seems well established that the average of human life is many more years than it was a hundred years ago. While we are free to accord to the advances in surgical science their just amount of credit, for the prolongation of life, we cannot overlook the fact that to the advances in medicine as well as surgery are due very many of the additional years enjoyed by mankind. Preventative medicine or sanitary science has had much to do, not only in rendering life more comfortable and desirable, but through its efforts the mortality has been reduced in a marked degree. As a result of its teachings we find the people as a whole, better fed, better clothed

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and better housed. The food is not only of better quality but all food products and drinks are freer from deleterious contaminations. Foods are better cooked and the diet of many households is presented in a way to be more nutritious. Greater care is taken that the water supply shall be free from dangerous contamination. The clothing is better calculated to protect the body from the inclemencies of the seasons. The houses are warmer and more attention is given to ventilation, not only of public buildings, but also of the homes, especially of the sleeping-rooms.

Again, some consideration must be given to the various instruments of precision which the physician can avail himself of to-day as aids in making a correct diagnosis; what with thermometers, microscopes, exploring needles, X rays and other electrical instruments we are in danger of neglecting or altogether losing the faculty of close observation which made our fathers such wonderful diagnosticians. We may take warning from Doctor Holmes' description of the wonders of the stethescope when, within it was the spider and the fly, and it was supposed that by its use a correct diagnosis could be made without the exercise of good sense and the observation of general conditions. It is well for us to keep in mind his closing injunction:

> "Now use your ears, all you that can
> But don't forget to mind your eyes,
> Or you may be cheated, like this young man,
> By a couple of silly, abnormal flies."

One of the most important advances which we notice is that the profession is coming out of its tent of expectancy in the treatment of diseases, into the broad open field of actual aggressive work. "The recognition of minute organisms, their study, their artificial culture and modes of

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growth, their secretions, their chemical changes, their likes, their antagonisms have let us into the secrets of the way in which infective maladies originate and the laws they obey."

We look to the bacteriologist to discover a germ for each malady that affects the human frame—and he does not disappoint us. We ask him further to study and present to us the origin and effect of ptomaines and leucomaines and again he does not deceive us. By a knowledge of the laws that govern these minute germs and the effects of chemic changes, we are able to explain many phenomena which before could not be solved and to get clearer ideas of auto-intoxication, showing that in many instances we have not to search far away for the causes that have produced the serious disturbances of the economy, which we witness, but to look within and there to find the manufactory of the poisons that are surely destroying the vital processes. Hence we ask for antitoxin, for serums to render the system immune, and nucleins by which we may destroy the germs which produce the infection. Antitoxin has proven to be of value in diphtheria and hydrophobia. Of its use in diphtheria many of you have already demonstrated its value in your own practice, to some extent, although in the last few years this State has been extremely fortunate in not having a severe epidemic of the disease within its borders. I also take it for granted that you are familiar with the report of the American Pediatric Society in which they report nearly six thousand cases with a death rate of only 12.8 per cent. So widely has this remedy been used and with such satisfactory results that it would seem almost criminal to attempt to treat diphtheria without using it. We believe that the following recommendations for the use of this remedy should be observed, they

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are the rules laid down by this committee and have been practically endorsed by all observers. All are agreed that in cases of suspected diphtheria, antitoxin should be administered at the earliest possible moment. While it may be that there is such a thing as giving an overdose, there is no authentic case reported of such an accident having occurred, in fact I doubt if any one has yet determined how much would constitute an overdose. The highest potency should be used. In laryngeal diphtheria the patient being two years old or over, should receive as a first dose 2,000 units; in twelve or eighteen hours after the first dose, if there is no apparent improvement, or if the change for the better is only slight, a second dose of 2,000 units should be given. In twenty-four hours if the improvement is not satisfactory another dose of 2,000 units should be given. If the patient is under two years the dose should be from 1,000 to 1,500 units, repeated as already mentioned.

The antitoxin of hydrophobia has been so long in use and the results so well known that we need only to allude to it as one of this group of remedies.

The antitoxin of erysipelas has not as yet been proven to be of sufficient value for us to give it more than a passing word. It is different with tetanus; the results of treatment of this disease by the use of antitoxin have been such that we believe every person suffering from this disease should be given the advantage this form of treatment affords. The treatment of septicemia by various serums has not resulted as satisfactorily as was hoped and cannot be recommended until further examination shall have developed a serum that shall have been proven to be of more value in the treatment of this affec-

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tion than any yet presented. However, quite recently Dr. Courtney of Brainerd, Minn., has reported a series of ten cases treated with nucleinic acid used hypodermically 2 c. cm. of a one to five per cent solution; nine out of the ten cases recovered. It would seem that his modest conclusion should meet with a hearty endorsement. He says, "The results of my work with yeast nucleinic acid in septicemia are sufficiently encouraging to justify a feeling of confidence and a continuance of its use."

The various "serums" and nucleinic acid have been recommended and used with some success but in a class of cases usually less rapid in their progress, and with results far less brilliant than those achieved in the treatment by antitoxin of acute diseases which run so rapid a course as do diphtheria and tetanus. Ever since Koch's announcement of his discovery of the tubercle bacillus in 1881 and especially after his announcement in 1890 of tuberculin as an agent of decided bactericidal action, investigators have been trying not only to find a safe and effective way of destroying the bacillus, but also of rendering the system immune as against any attack from this especial germ. Before we commend or condemn any one of the various preparations designed for this purpose, we must consider some of the conditions we have to contend with. There has been the same tendency with this disease as with all morbid states in which pathogenic germs were found, to ignore every element of the case except the existence of the germ, and attributing all morbid changes and resulting symptoms to its presence in the tissues. We must give due weight and prominence to the fact these germs cannot even exist, much less flourish and multiply, unless they find mucous membrane, glandular

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tissue or other organic structures in such a state as to furnish them with the proper environment for their growth and development. This desirable nidus may be a condition inherited or it may be acquired. I recall a family in which all the children, five in number, developed tuberculosis at the age of twenty two. It seems extremely probable that there was an inherited tendency to the degeneration of the post nasal and pharangeal adenoid lymphatic tissues so that there was a deterioration in quality or in quantity of the leucocytes which usually destroy the bacillus as they may be inhaled or swallowed. This failure thus to destroy left them free to seek lodgment in the gland or on mucous surfaces, themselves in an abnormal condition, by reason of the imperfect circulation which had failed both to remove properly the effete matter, and to bring again blood bearing the proper nutritive elements to repair and keep in a normal, healthy condition the glandular and mucous structures.

If it is true, as Tizzoni claims to have proven, in persons supposed to be in good health, and who have been killed by some accident, that there really existed some infection of their glandular system, then we must conclude that tuberculosis may exist for a considerable period without recognition, being held in abeyance by the resistance of the physiological action of the leucocytes of the organization, until such time as the parts affected by an acute catarrh, influenza or other depressing acute inflammatory attack, find themselves obliged to succumb to bacterial action. Taking then this cusory view of the pathology of these pre-existing conditions, of even the incipient stage of tuberculosis, it is evident that our therapeutical efforts must first be directed to restore the glandular

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and mucous surfaces to a normal condition, as well as to the destruction of the bacillus.

We must recognize the fact that when we find the bacillus in the sputa the disease has arrived at an advanced stage of tissue changes, which will require that the blood and nerve supply shall be of the best.

For these reasons all experimenters with serum or nucleins start with the announcement that in order that these remedies shall be effective they shall be employed in the very earliest stages. The object sought by the use of nucleinic acid as proclaimed by Vaughn, the serum of the blood of the ass as practiced in Geneva, or the immunized blood serums of the horse as developed by Paquin is to furnish reinforcement to the leucocytes of the system in their efforts to destroy the invading bacillus, but as already indicated these serum treatments must have as adjuncts the administration of blood restoratives, nerve tonics and tissue alteratives, and in cases where pus cavities are formed it may be desirable to also use the anti-streptococcus serum.

The dose of the nucleinic acid is half to four c. cm. of one per cent solution, repeated every second day, given subcutaneously, sometimes the five per cent solution has been given by the mouth in teaspoonful doses three times per day. Of the blood serum the initial dose should not be more than half a c. cm. subcutaneously, repeated daily and increased to three or four c. cm. Occasionally a patient from some idiosyncrasy will develop urticaria, erythemia or symptoms of arthitis and the use of the serum will have to be suspended, or abandoned altogether. These injections must be given every day and for at least three months. Frequent microscopical examinations of the

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sputa should be made, to determine the presence or absence of the bacillus. In country practice, the every-day treatment is often a great, if not an insurmountable obstacle in the proper care of the case, for the reason that the patient is so far from the physician that daily visits for a long period are impracticable. We have said nothing of Koch's "new tuberculin," as its use has not yet been tested sufficiently to warrant its recommendation to the general practitioner.

The use of serum in the treatment of typhoid fever is still under advisement, experimentation not having established its value. A great advance has however been made in the diagnosis of this disease. In 1894 Pfeeffer announced that if the serum of an animal immuned against cholera was added to a fresh culture of cholera vibrio, a peculiar effect was produced. He applied a similar test to doubtful cultures of typhoid bacillus and found they could be distinguished from all other bacilli, but claimed this could only be determined by trying the experiment within some living animal, preferably the peritoneum of a guinea-pig. Grüber in 1895 made the same test in a test-tube. Others made the same discovery, but made no practical use of the fact. It remained for Widal in June, 1896, to show its practical application. If a drop or two of blood serum containing the Eberth bacillus be added to a culture of colon bacillus the clumping or agglutinating of the bacillus takes place. Further experimentation showed that a drop of serum from the blood of a typhoid patient is mixed with ten or fifteen drops of fresh buillon culture of typhoid bacillus, the bacillus will clump together in a short time.

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This subject was most thoroughly discussed in the section on the practice of medicine at the last meeting of the American Medical Association. The president of the section appointed a committee to present a summary of the discussion which they did as follows:

"1. In selecting the material used in making the test the choice between; *a*, serum, *b*, dried blood, *c*, fluid blood, and *d*, blister fluid, will depend largely upon whether the object be scientific research, clinical diagnosis in hospital or private practice, or public laboratory diagnosis where the samples have been sent some distance.

2. In spite of considerable variation in technique, there has been a remarkable uniformity in the results obtained by those taking part in the discussion, and their average of about 95 per cent of successes agrees with the general average of the cases, nearly four thousand, thus far recorded in medical literature.

3. Each of several methods of technique advocated may thus give good results in the hands of those thoroughly familiar with the details found necessary in each case and the sources of error to be avoided, success depending rather on being perfectly familiar with one method than on the particular one selected.

4. For routine diagnosis work even the simplest methods may give good practical results, but for recording scientific observations those methods which are accurately quantitative should be selected. This is especially necessary in reporting exceptional cases at variance with the general results recorded or where the observations are the basis of eralizations.

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5. A complete reaction should comprise both characteristic clumping and total arrest of motion occurring within a definite time limit. For practical diagnostic work a dilution of 1 to 10, with a fifteen minute time limit, is convenient. In any doubtful case the dilution should be carried as far as 1 to 50 or perhaps to 60, and a reaction not obtainable at that point should not be regarded as perfectly conclusive. For these higher dilutions the time limit should be extended to two hours.

6. Intensity of reaction in a given serum should be estimated by determinating the degree to which it may be diluted without losing its power of giving a decided reaction, both as to agglutination and loss of motion.

7. The intensity of reaction shown by the same serum is influenced by the age, condition and virulence of the test culture and by the composition and reaction of the culture medium. For purposes of comparison the sensitiveness of the test culture should be taken in consideration.

8. The evidence so far recorded establishes that the reaction may be delayed or occasionally may not be obtained in cases of genuine typhoid infection; and also that it may be exceptionally present in non-typhoid cases, though not in an intense degree.

9. In investigating exceptional and contradictory results the following circumstances have to be considered: *a.* The uncertainty of clinical diagnosis. *b.* The absence of bacteriologic or other confirmatory methods of diagnosis during life, giving decisive negative results. *c.* The possibility of overlooking typhoid infection even postmortem, in the absence of characteristic intestinal lesions where a very thorough bacteriologic examination has not been carried out.

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10. The modifying influences mentioned above suffice to explain the divergencies existing in the reports of different observers. Without being absolutely infallible the typhoid reaction appears to afford as accurate diagnostic results as can be obtained by any of the bacteriologic methods at our disposal for the diagnosis of other diseases. It must certainly be regarded as the most constant and reliable sign of typhoid fever, if not an absolute test."

The great value of this diagnostic test will be at once appreciated. The distinction between typhoid fever and diseases presenting a typhoid state, as well as cases of slow fever, autumnal fever and febricula will be established. Then all questions of the correctness of the diagnosis, when different methods of treatment are suggested, will be settled and more exact conclusions drawn.

The State Board of Health has under advisement, the question of in some way arranging with competent parties for the diagnosis of both diphtheria and typhoid fever by examinations of faucial secretions or blood, examinations to be made for any practitioner in the state that may desire it. Up to the present time they have not been able so to do.

The treatment of pneumonia by the use of the antipneumococcic serum, has been suggested. As early as 1891 experiments were conducted by several foreign bacteriologists especially Klomperer and Foâ to prove that the blood serum of rabbits immunized to the pneumococcus possessed the property of protecting other rabbits against infection with this micro-organism. They followed these experiments by treating the disease in man by this immunized serum of the rabbit. Andeoud has used for this purpose the blood serum of persons convalescing from pneumonia. They did not in

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either case have any exactness regrading strength or quantity, hence their practical work was of little value.

Dr. Washbourn of London reported in the early part of this year the results he had obtained in two cases, treated with blood serum of a pony, which he had rendered immune by injecting him with broth cultivations of the pneumococcus and later with living cultures. These were continued weekly for five months, when by injecting the peritoneal cavity of a rabbit no ill effects followed, the pony was declared immune. With this serum he treated the only two cases I have been able to find reported. If this serum has been used in this country for the treatment of pneumonia, I have failed after considerable search to find any record of it.

His first case was a young man aged 29, rather a heavy drinker. He was taken ill with a sudden chill, with pain in chest; after six days he came under treatment. At this time his tongue was furred and tremulous, breathing rapid, cough with rusty expectoration. Pulse 108. Temperature 103.6°. Respirations 33. There was a trace of albumen in urine, chlorides diminished. On left side, auscultation and percussion showed pleuritic friction and impaired resonance over lower half of chest, with broncophony, tubular breathing and fine crepitations. There was slight delirium. The following morning symptoms same, except there was complete dullness over lower left chest; in the afternoon the temperature was 104.2°. At this time, two o'clock, the first serum was injected. Twenty c. cm. of this anti-pneumococcus serum of the strength of 660 units was used; at four o'clock the temperature had fallen to 101.6°, but at 6 P. M. it had risen to 103.4°; at midnight it had fallen to 100.2°. In the morn-

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ing at 10 o'clock it had again risen to 103.2°. Pulse 116. Respirations 40. Physical signs unaltered. At 10 P. M. another injection of the serum of the same strength and quantity was given. The next morning he was better. Pulse 88. Temperature 99.2°. Respirations 28. Cough almost gone and sputum not rusty; still dullness at the base of left lung, but tubular breathing replaced by râles. From this time the patient rapidly convalesced. It will be observed that the temperature fell on both occasions after the use of the serum and on the day after the second injection, the crisis occurred. As this was on the ninth day of the disease, it is difficult to say whether the result was due to this treatment or not.

The second case was of double pneumonia in a young man of 25, also a heavy drinker. Was seized with a severe chill the day before he came under observation. At this time his temperature was 101.4°. Respirations 44. Pulse 140, tongue furred, pain in right side, harsh vesicular murmur at base of right lung but no other physical signs in lungs; first cardiac sound rather blurred, and impulse to be felt in line with nipple, and half an inch external. Urine shows trace of albumen. He was given acetate ammonia, and 1-4 grain morphia at bed time. The next morning expectoration showed rusty sputum. On examination of right lung posteriorly from base to angle of scapula, there was dullness, tubular breathing, broncophony, râles, pleuritic friction. On left side there is diminished resonance over about the same extent of lung, tubular breathing and broncophony. At four in the afternoon the dullness on right side had extended upwards two inches. At five o'clock 20 c. cm. of the same serum was injected. He passed a quiet night and the following

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morning seemed better, yet his temperature was 102.6°. Pulse 112. Respirations 60. At 11:30 the injection of the serum was repeated. During the remainder of the day the patient was restless and delirious requiring two 1-6 gr. doses of morphine, and four ounces of brandy. In the evening his temperature was 104.5°. The next morning pulse 104, respirations 33, temperature 100.4°. On right side dullness decreased by two inches, tubular breathing faint, on left side the tubular breathing replaced by fine râles; at quarter of eleven o'clock in the evening, another injection of same amount of serum was given and brandy omitted. He passed a quiet night and in the morning seemed much better. Pulse 92, respirations 36, temperature 99°. Right chest clearing, left chest completely cleared. From this time, being the fifth day, his recovery was rapid. This patient was a bad subject for pneumonia on account of his intemperate habits. The attack was severe, both lungs being affected. There was a good deal of delirium, the pulse 140, with signs of dililation of heart on second day, on the day after the first injection the pulse-rate had fallen to 112. The disease in the left lower lobe never advanced after the treatment was begun. In both cases an urticarial rash was observed similar to the rashes occurring after injection with other serums and antitoxins. I have given the histories of these cases in detail as they are practically the only cases treated by this method at least of which we have any authentic report.

This brief resume on some of the lines of medical progress in serum therapy is not presented for the purpose of instructing you upon these different lines, upon each one of which long dissertations might with profit be written,

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but to impress upon you the fact that we have already entered upon a decidedly new and advanced method of treating many diseases, to inspire you with an ambition to search the literature of the subject and to encourage each one of you, to give personal investigation to this work, as opportunity presents itself.

When we consider how far-reaching this new therapeutics is likely to be, upon the future of our loved profession, we are inclined to exclaim with our honored, but departed colleague Holmes,

> "Oh might our spirits for one hour return,
> When the next century rounds its hundredth ring,
> All the strange secrets it shall teach to learn,
> To hear the larger truths its years shall bring,
> Its wiser sages talk, its sweeter minstrels sing!"

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Infantile Scorbutus.

By C. E. Allen, M. D., Swanton.

Mr. President and Gentlemen:

Infantile scorbutus is so closely allied to the disease as manifested in the adult in its etiology, symptoms and pathology, that a short history of the affection as exhibited in the adult seems necessary to obtain a clear conception of the subject.

Scorbutus is a condition of malnutrition induced by the continued use of a diet lacking in fresh vegetable material, with a tendency to death within a certain length of time should the conditions under which it arose remain unchanged.

In a well marked case of this disease there is a great degree of anæmia, bodily weakness and mental depression with extravasations of blood into the various tissues and cavities of the body and a swollen and spongy condition of the gums, accompanied by tenderness, especially in the lower limbs and causing pain on motion or pressure.

Scurvy has been known since the earliest times, and before its etiology and treatment was understood, has alone and by its influence upon other disorders been more destructive to mankind than any other disorder; nothwithstanding which it has been most satisfactorily proven to be curable by means at hand in every habitable country.

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It occurs only when fresh vegetable nutriment has been wholly or partially withheld from the diet for a considerable length of time. Scurvy does not appear when there is an abundance of fresh food and vegetables, though the food may be lacking in other ingredients necessary for perfect nutrition of the system in other regards.

In the early stage of scurvy the skin become pale and anaemic and the patient exhibits a listlessness of mind and a lack of desire to exercise or trouble himself about his condition. An energetic person becomes indolent and reserved, not speaking except when addressed, though if inquiry is made will complain of pain in the back and limbs which he usually attributes to rheumatism.

There is no fever except from haemorrhages into lungs or other cavities, and the patient usually sleeps readily enough.

Gradually small spots of extravasated blood appear, especially upon the legs and thighs, of a reddish-brown color. Often a number of these spots coalesce and form larger maculae, while later in the disease larger areas will be noticed, giving the parts an appearance as if caused by direct violence.

In connection with these external signs, dyspepsia is likely to intervene unaccompanied by physical signs of heart or lung implication.

The countenance indicates dejection or indifference together with more or less bloating. The gums are generally so remarkably altered that many writers give this as a complete test of the disease, though other observers have found all the other symptoms of scurvy present with the gums unaltered or possibly paler than usual.

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In most cases early in the disease the gums are pale and contracted but soon begun to show swelling at the margins which gradually increases until the teeth are encroached upon and finally may nearly disappear.

The gums are dark and spongy and disposed to bleed.

The teeth become loosened and if the condition continues are likely to fall out and the odor from the mouth is untolerable, due to sloughing. The patient is likely to suffer from syncope at this stage of the disease and his appearance is appalling.

His skin is dry and harsh, discolored with bruised spots, dirty looking and bloated, and one unacquainted with the nature of the disease would think him entirely beyond the reach of human aid. Yet, the change brought about in a few hours by the administration of antiscorbutic diet is one of the most wonderful things known to medicine and of itself proves beyond doubt that the principal cause of scurvy is an absence of such diet.

Our understanding of the final cause of scurvy is very obscure.

That the immediate cause is a change in the quality of food, being deprived of certain vegetable acids, is obvious from the history of the disease. There are no microscopical changes in the blood, nor does a bacteriological examination afford any satisfactory solution of the difficulty. In fact, there are no changes in the blood, either anatomical or chemical, that are peculiar to the disease. The most reasonable explanation of the phenomenon is that the relation between the blood and the capillaries and tissues is so altered as to permit some or all of the constituents of the blood to leave their natural receptacles and to enter tissues from which they are excluded in health.

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Through the researches of Lind and other investigators in the early part of the century the mortality from the ravages of scurvy in the adult has been almost entirely checked; but in infants during the time of bottle feeding, when the diet is of limited range, many cases continue to develop, and I believe the mortality from this source is much larger than it should be, for there should be none whatever.

The etiology, symptoms and pathology, according to Cheadle and Barlow, of infantile scorbutus are identical with those noticed in the adult. The spongy bleeding gums, which are so prominent a symptom in the adult, are usually well marked in children. This condition may be absent in cases developing before the appearance of the teeth. The sponginess is chiefly found about the teeth which have appeared, or about the teeth not yet through the gum. Occasionally only small submucus ecchymoses will be found, even as is seen in an adult patient who has lost his teeth.

Children are more subject to pyrexia in this disease, but this probably depends upon the amount of hæmorrhages and inflammatory reaction with septic infection that supervenes.

As for the other symptoms, the earthy pallor, the anæmia, muscular weakness, tendency to syncope, the œdema, listlessness, and hæmorrhages, the albumenuria, tenderness and swelling of the limbs, they are identical with those in the adult.

Careful observers have failed to record any cases of scurvy in infants at the breast or in those fed with an ample supply of good cow's milk. On the other hand, those fed upon oat-meal and water, bread and water, desiccated

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foods, peptonized condensed milk, &c., with a very limited supply of fresh milk, or none whatever, are the subjects in whom scurvy is seen to develop, and in these cases in children, as with adults, the use of antiscorbutics is a most convincing proof that the condition is one of true scurvy.

The following cases, one of which was attended by a brother practitioner and the other in my own practice, demonstrate the certainty with which scorbutus will develop in the absence of fresh vegetable material. In both cases the parents are in good circumstances and anxious to provide everything possible for their children's welfare, and in my experience the disease in this country is more likely to develop among the well-to-do, as they do not allow their infants to eat potato, etc., at table as is customary among the poorer classes, and this practice, while it is likely to cause digestive troubles, is a preventative of scurvy.

Case 1. G. R., born of healthy parents, did well apparently on the nourishment given it to the age of eight months, when she became fretful; her appetite variable, lost flesh to a certain extent, but not very perceptibly, no position seemed comfortable and it was thought the child had rheumatism or had been injured by the nurse. She was kept upon a pillow and at night would wake crying, when a change of position would relieve her. Child would not try to bear any weight upon her feet, was very sensitive to the touch, the tongue was inflamed and the gums purple and swollen. There was no diarrhœa and food seemed to agree with her, but she did not care for it.

The diet had been condensed milk and farinaceous food. This was changed to fresh cow's milk and Mellin's.

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food, together with orange juice, potato pulp and celery juice. In twenty-four hours the child began to improve and made an uninterrupted recovery.

Case 11. F. M., born of healthy parents and as in the first case never nursed by mother. Was fed upon milk and water for first few weeks, but a diarrhœa intervening this was changed to desiccated food, which agreed with the digestion and diarrhœa was checked; but the child did not gain in weight or develop at all rapidly and at the age of seven months his weight did not exceed fourteen pounds. At this time the child became fretful, which was thought to be due to teething; but in a short time he became very sensitive to the touch and soon the lower limbs seemed to entirely lose their power as if paralyzed, and the skin took on an earthy anæmic look. The gums were slightly swollen at the margin, with some sponginess, but not marked.

The child was now fed cow's milk undiluted and given orange juice quite freely. A change for the better was noticed immediately, the lameness disappeared within two weeks and now, at the age of one year, his weight exceeds the average weight of a child one year old.

The points which I wish to emphasize in these cases are:

1. An absence of digestive disturbances to warn us that the food was inefficient.

2. The misleading symptoms that pointed to rheumatism or infantile paralysis.

3. The few symptoms present to lead one to suspect scurvy.

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It is my firm belief that had we failed to discover the cause of the trouble and had not corrected the diet that both little patients would have died, as medication without a generous supply of vegetable acids added to the diet is entirely useless.

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Cancer of the Uterus.

By John B. Wheeler, M. D., Burlington, Vt., Professor of Clinical and Minor Surgery and Adjunct Professor of Surgery, Medical Dept., University of Vermont.

Mr. President and Members of the Vermont State Medical Society:

It is not with the expectation of adding to your stock of information that I have chosen a subject so familiar to us all. No attempt, therefore, will be made to enter into an exhaustive dissertation on uterine cancer. My aim is merely to show how much can be done towards its radical cure, by the employment of the proper means at the proper time. But before speaking of the results obtained by modern methods of treatment, it will be necessary to call your attention to certain tolerably well-known facts in the natural history of the disease, such as its frequent occurrence, its insidiousness, the period of life at which it is most common and some of its exciting causes.

I. *Frequency.* Of all parts of the body, the uterus is the one most frequently attacked by cancer. Few of us, I think, realize how often cancer is found in the uterus. According to the statistics of Schroeder, based on an examination of over 20,000 cases, from 2 to 3½ per cent of all uterine diseases are cancerous, while of all cancers in women, one-third are cancers of the uterus. Emmet's in-

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vestigations, in this country, give practically the same results, and Warren, in his Surgical Pathology, says that in the order of their liability to develop cancer, the uterus comes first of all the organs, the stomach second and the breast third.

II. *Insidiousness.* The onset of uterine cancer is generally insidious. In many cases, the classical symptoms of pain, hemorrhage and fetid discharge do not appear until the disease has made considerable progress. They are apt to be preceded by a slight and watery but persistent uterine discharge, which often is a little bloody. This discharge is so insignificant that it often fails to attract notice. Sometimes the first symptom observed is a slight hemorrhage after coitus. In cases like these, if an examination is made, an erosion of the cervix will generally be found, which except for some elevation of the edges, looks like a benign erosion, but does not heal under treatment. Microscopic examination of a section taken from such a cervix will often show the beginning of malignant disease, or if the microscope is not employed, the subsequent course of events confirms the suspicion of malignancy which should always arise when we have to deal with an erosion which obstinately resists treatment.

In some cases the disease progresses much farther than this before there are any symptoms other than those mentioned above. Last winter I operated on a desperate case in which, until two weeks before the operation, there had been no symptoms whatever except a slight discharge which had lasted six or eight months, but was odorless and not even bloody until the last month, when it was slightly tinged. The symptom which finally called attention to the trouble was severe pain in back, groins and

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bladder, which began only two weeks before I saw the patient and operated on her. The bladder, rectum and ureters were all involved in the growth and the advanced condition of the disease rendered the operation so severe that the patient died of shock. And yet, until two weeks before the operation, she was apparently an uncommonly strong and healthy woman, with no sign of trouble except a trifling leucorrhœa. If, when this symptom first appeared, an examination had been made and the true state of the case ascertained, a hysterectomy could have been done which would have been easy and safe in comparison with the one which was done, and in all probability would have saved the patient's life.

III. *Occurrence at the Menopause.* The frequency with which uterine cancer occurs at the menopause, is another well-known, but not properly appreciated fact to which I wish to allude. The number of cases in women between the ages of 40 and 50 is much greater than in any other decade of female life, while more than 60 per cent of all cases of cancer of the uterus occur between the ages of 40 and 60. My reason for saying that this fact is not properly appreciated, is that physicians are so apt to attribute any uterine hemorrhage which occurs within ten years of a woman's 50th birthday, to her "change of life," and to "let it go at that," instead of remembering that uterine cancer is a very common disease, commoner at the menopause than at any other time, and examining to see whether they have not got such a case to deal with. The tendency to make a scape-goat of the menopause has allowed many a cancer which, unlike the case lately referred to, has bled freely from the first, to develop into an utterly hopeless condition, because the doctor kept talking

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about the "change of life" instead of looking to see what the matter was.

IV. *Cervical lacerations as an exciting cause of cancer.* Notwithstanding the incessant researches of pathologists into the origin of malignant disease, the original cause of cancer of the uterus has not yet been determined. Of the different causes which are thought to favor its occurrences, such as age, heredity, child-bearing, cervical erosions and lacerations, it is my purpose to speak only of the latter, as giving us a hint toward the prevention of the disease.

Authorities agree that laceration of the cervix, with its accompanying erosions and endo-cervicitis, is perhaps the most frequent exciting cause of cancer of the uterus, although few go as far as Emmet, who seems to consider laceration a factor in the production of every case of the disease. It is, nevertheless, an undeniable fact that even epithelioma of the cervix has been known to occur in women who have never been pregnant. Such cases, however, are extremely rare. But it is a common experience to find that uterine cancer, when it occurs in a woman under forty years of age, springs from the exuberant granulations of an unhealed laceration of the cervix, and still commoner to find that, at the menopause, an epithelial growth has implanted itself upon a cervical laceration in accordance with the tendency of epithelioma to develop in tissue which is undergoing a retrograde metamorphosis. The moral of this is clear, namely that if we promptly and properly repair cervical lacerations, we can at least materially lessen the chances of the subsequent development of cancer.

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The only method of treatment which offers any prospect of cure of cancer of the uterus is hysterectomy. This operation, at first a forlorn hope, undertaken only on account of the certain and horrible death in which cancer ends if left to itself, has gradually, through improved technique and selection of cases, increased its cure rate and diminished its mortality rate until we are perfectly justified in recommending it to patients in early stages of the disease. For such patients there is a good prospect of a comfortable prolongation of life, a fair prospect of radical cure and but slight danger to life from the operation itself. Instead of the old mortality rate of 25 or 30 per cent, the most successful operator, Jacobs of Brussells, nowadays loses only 2.9 per cent of his hysterectomies, while the results in the hands of good operators generally average about 6 per cent of deaths. As regards the question of return of the disease, we have, instead of the certain recurrence of former days, numerous series of cases reported by different writers in which the percentage of cures three years after operation varies from 10 per cent in a series compiled from the work of a number of operators (Warren's Surgical Pathology), to 95 per cent in the work of one man, Leopold. Even if the lowest of these figures represented the best results for which we could hope, an operation which will cure 16 per cent of cases of such a disease as uterine cancer, is certainly well worth trying.

To the general practitioner, the important practical point regarding the modern results of hysterectomy for cancer is, that they are due, not merely to improved technique, but in large measure to early recognition of the disease and prompt operation. The earlier operation is done, the safer it is and the better are the chances of radical

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cure. When the cancer has begun to infiltrate the periuterine tissues, the best that can generally be hoped for is some prolongation of life and temporary relief from suffering. But if the malignant growth has had no time to get beyond the cervix, then the prospect of radical cure is bright. It is because this truth is becoming generally recognized that the modern statistics of cure are possible.

To sum up. We have in cancer of the uterus a frequent and most fatal disease, whose occurrence, in a certain number of cases, can be prevented by the removal of the commonest of its exciting causes and whose existence, if recognized early enough, can in many cases be terminated by modern surgical methods. Let me, then, urge upon every member of this society, the importance of care and attention in these matters. Don't let your cervical lacerations go unrepaired, and thus encourage the development of cancer in your patients. Don't ascribe every case of uterine discharge, hemorrhagic or otherwise, occurring in women in their fifth decade, to "change of life." Remember that the menopause is the time, of all others, to expect cancer, and don't diagnose "change of life" until you have examined and made sure that no cancer is present. Don't treat a persistent uterine discharge, slight or profuse, at any time of life, without definitely ascertaining whether its origin is malignant. Remember that an erosion which obstinately refuses to improve under careful local and general treatment, is probably cancerous. If you are unfortunate enough to run upon a case of cancer where the uterus is already fixed in the pelvis and the disease has involved the surrounding tissues, palliate as best you can with curretting, caustics and morphine, but if you have a case in which the parametria are not involved,

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don't be afraid to advise a hysterectomy. The disease with which you are dealing is absolutely fatal and the operation by which you propose to relieve it is one whose risk to life is small and whose chance of radical cure is good.

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The Significance of Post Climacteric Hemorrhages.

By F. A. L. Lockhart, M. D. I. and C. M., Edinb., Gynecologist to the Montreal General Hospital, and Protestant Hospital for the Insane, Verduni Demonstrator in Gynecology in McGill University, Etc.

Mr. President and Gentlemen:

I have to thank you very sincerely for the honor which you have conferred upon me by inviting me to be present at and to take an active part in the proceedings of your society, and I hope that you will not find the following remarks out of place at a meeting where all departments of medicine receive their due consideration.

From a sexual standpoint, woman's life may be divided into four periods; viz., 1. Childhood, i. e. before the onset of puberty; 2. Puberty, or the period during which the sexual characteristics are manifesting themselves; 3. nubility, i. e. when the female is thoroughly mature and ready to fulfill her function of reproduction; 4. climacteric or menopause, i. e. the period at which sexual activity ceases and the individual has completed her period of fertility.

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Just as the beginning of sexual activity (puberty) is marked by periodic pelvic congestion, as evinced by the appearance of an haemorrhagic discharge from the genitals which is called the process of menstruation, so its termination (the climacteric) is marked by a permanent cessation of this flow. This is the rule, but, just as in every other case, this rule has its exceptions, as cases have been recorded where females have given birth to children both before the first appearance of menstruation and after the establishment of the menopause.

The ages at which each of the above-mentioned epochs begins, vary in different altitudes and, to a less extent, in different races. In our own temperate zone, the menstrual function usually begins between 12 and 14 years of age, while the menopause occurs between the ages of 42 and 45. As regards nubility, very few of our girls are really thoroughly fitted to undergo the responsibilities and trials of matrimony until they reach an age of 21 or 23 years, by which time both mind and body should have become well developed, although each individual is a law unto herself, and while one might be nubile at eighteen another may not reach that stage until thirty.

The periods of puberty, maturity and the climacteric have gynaecological diseases to which the patient is especially liable. During the establishment of the menstrual function, there is the liability to sarcoma and to an acceleration of any constitutional malady which the patient may possess. While the sexual system is most active, the patient is particularly prone to fibrous growths of the uterus, and, in illustration of this, allow me to briefly relate a case which occurred in my own practice. Two years ago, a young lady, 28 years of age, came to me complaining of

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severe dysmenorrhoea. A very careful and satisfactory pelvic examination under an anaesthetic revealed only an ordinary sized uterus, which was the seat of anteflexion and endometritis, the appendages being normal. The patient married about twelve months ago and came to me six months later, complaining of intense pain in the left illiac region, dysmenorrhoea and excessive flow at her periods, which occurred quite regularly every twenty-eight days. Local examination revealed a cervix which was soft but not so much a typical softening of pregnancy, and the uterus lying so much forwards and enlarged quite symmetrically to the size of a four months' pregnancy. Owing to the rapidity of growth and to her mother's having menstruated each of the nine months when carrying her children, the possibility of pregnancy occurred to me and this opinion was shared by another physician who was asked to see the case with me. As further observations showed the growth to be a fibroid, I removed it a few weeks ago. I have no doubt but that there was a very small fibroid nodule inside of the uterus at the time of the first examination, and that the repeated attacks of pelvic congestion due to the exercise of marital relations caused the extremely rapid growth of the neoplasm.

We are now in a position to consider the question of "post-climacteric haemorrhage," and, as a text, permit me to make the following quotation from "An American Text-book of Gynaecology," viz, "If uterine bleeding occurs after the establishment of this condition (the climacteric) one of two diseases is most likely to be found—either fibroma or malignancy, with the chances largely in favour of malignancy, especially if the woman be a multipara."

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While we cannot take up all of the diseases which may possibly occur, at the menopause, I think that the above quotation from one of our standard text-books will warrant some consideration of genital carcinoma, which in the vast majority of instances makes its first appearance at or near the climacteric. It is the fact of the tendency of this disease to occur at this time and that one of its most constant symptoms is haemorrhage, which gives to post-climacteric haemorrhage an importance which I fear is not sufficiently recognized by most writers or insisted upon sufficiently by teachers. How often a patient comes to us saying that the change of life came on four or five years ago, that she had observed discharges of blood from the genitals now and then for the last six months or a year but had thought nothing of it until now, when the amount of blood lost had increased to such an extent that she became alarmed, and upon making a local examination we find that the cervix has been the original seat of carcinoma, which has now spread outwards into the broad ligament and down into the vagina to such an extent that nothing can be done in the way of curing the condition. Gentlemen, it is the duty of every conscientious physician to insist upon making a local examination of every woman who has passed the climacteric and comes to him complaining of a coloured vaginal discharge, whether she has pain or not. If the patient refuses, it is better to withdraw entirely from the case, as, after she has learned, later on, that she has a cancer which has progressed too far for any hopes of cure, she will very probably blame you for not having forced her to submit to be examined. If the case be one of carcinoma, the uterus will be more or less enlarged and hard without any other alteration in the cervix than an excessive

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hardening, if the disease be confined to the fundus. There will also probably be a malodorous discharge from the uterus. If the cervix be the seat of the disease and this is in an early stage, it will be hard and probably somewhat nodular with proliferation of the epithelium which bleeds upon contact with any hard substance, and which has here and there greyish patches scattered over its surface. In a later stage you have, of course, the well-known crater-like cavity, the walls of which crumble away under the finger. The patient will also present the usual cancerous cachexia, especially if the disease be at all advanced. This appearance, however, must not mislead one, as there are cases where the cervical canal is stenosed in old people and the uterine contents become putrid, this giving rise to a cachectic appearance, but here there is little if any haemorrhage although a fetid discharge may be present.

Another condition occurring at this time of life and which is characterized by bleeding, is simple senile endometritis of the haemorrhagic variety. Here, the haemorrhage is in the form of a constant oozing instead of gushes of blood, and the fluid is inclined to be dark and to be mixed with mucus. This may occur in elderly women who are very much run down in health, even if the uterus is in good position, but it is more apt to occur where the uterus is prolapsed or retroverted. This general oozing is almost characteristic of senile haemorrhagic endometritis, as it is not due to the sudden breaking down of comparatively large blood-vessels as in cancer or atheroma, but now and then the blood does come away in gushes, in which case it is apt to be bright colored. The following case well illustrates the condition which we are now considering: Mrs. B., aged 62 years, who was under my care

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for functional cardiac trouble for some years, came to me complaining of a mucoid discharge which was streaked with blood. Her periods had ceased about 12 years previous. She had had only one child about 35 years ago. No history of miscarriages. She led a very sedentary life, walking very little and not even driving very much. She gave a history of having over-exerted herself to some extent. There was no pelvic pain or loss of flesh. Local examination revealed a cervix which was not lacerated but the margins of the os were soft and velvety. The fundus was slightly enlarged, non-sensitive, freely movable and somewhat prolapsed. Senile haemorrhagic endometritis was diagnosed, and she was put to bed. A tonic was ordered for her and she was advised to take hot douches, containing one teaspoonful of Fld. Ext. Pinus Canadensis alba to each quart of water, morning and night, and was well in a few days. You may ask how I can be certain that this old lady did not have cancer? I am sure of it for two reasons. First of all, the patient's appearance and history were opposed to cancer, and secondly the discharge of blood occurred over two years ago and the patient has been in excellent health ever since.

It is stated that when you have extensive atheromatous changes taking place in other parts of the body, you have it occurring in the submucous vessels of the endometrium. When this is the case, the vessels break down and cause more or less haemorrhage which may be in the form of gushes or oozing of bright red blood, not the dark colored discharge seen in senile endometritis. This condition, however, I have never been able to differentiate clinically, from one of simple senile endometritis and I think that those who have described the condition have made their diagno-

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sis *per visu* after the uterus has been removed from the body or else by inferring an atheromatous condition of the uterine arterioles from the presence and extent of the condition elsewhere, but this reasoning is liable to lead one into error. The following case well exemplifies the fact that a woman may have a great deal of atheromatous degeneration of some vessels while those of those of the uterus are entirely unaffected: Mrs. F., age uncertain but probably over 70, was admitted to the Gyneocological ward of the Montreal General Hospital with complete procidentia of the uterus. As local treatment would not keep the uterus in position, the question of vaginal hysterectomy was considered, I being decidedly chary about operating on account of the extensive atheromatous degeneration of those arteries which could be palpated, as I thought that we would have great trouble to stop any haemorrhage during operation. However, I removed the uterus *per vaginam* and had no difficulty at all with the vessels, although the thickening of the mucous membrane over the cervix rendered the operation very difficult by obscuring the land-marks. On examining this uterus for atheroma, none could be found although carefully searched for.

In addition to the above conditions, you may have hæmorrhage from a sub-mucuous fibroid, but it is rare to have this disease not manifest itself until after the climacteric. Of course this condition is comparatively easily diagnosed by the size and shape of the uterus, its mobility and the appearance of the patient, who will probably be quite robust. If, however, it is merely a polypus which is causing the trouble, the diagnosis is not so easy, as the uterus may not be enlarged. Even the curette or sound may not detect it, so that exploration of the uterine cavity with the finger is

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of great service in diagnosing any of the above conditions. Of all these latter, the case which will give you most trouble is one in which you are uncertain as to whether the patient has endometritis or carcinoma of the fundus. In both the uterus will probably be enlarged (more so of course if the case be malignant), in both there may be cachectic appearance and you may have pain with both or with neither. However, in carcinoma you will usually have a malodorous discharge, fitful hæmorrhage, more or less rapid loss of flesh and no improvement on treatment, while in endometritis the discharge will probably have no odor, and will be mucoid and streaked with blood. Again the loss of blood will be by a steady oozing usually, there is not so great a probability of the patient's being cachectic, nor is she likely to lose flesh to any extent, and lastly, the more children the woman has had the greater are the chances in favor of malignancy. If you cannot decide otherwise you should undoubtedly curette the cavity and have the tissue removed examined by a competent pathologist. If he diagnoses cancer, remove the uterus at once, while if he pronounces the trouble to be benign, watch the case very carefully for several months. If the hæmorrhage should return after a second, or at the most a third, careful curettage, I would strongly advise removal of the uterus, as the disease is almost sure to be of a malignant nature. While a strong opponent to the indiscriminate removal of uteri, say for tubal disease, I think that, if one is a skilled operator and has a reasonable doubt as to whether a uterus is the seat of cancer or of endometritis, and the doubt can be cleared up in no other way, he should remove that uterus at once and allow no chance of a post mortem diagnosis of cancer of the fundus nine months or a year later. Statistics are proverb-

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ially unreliable, therefore I will give none, but I think that you all will agree with me that vaginal hysterectomy where you have a small, freely movable uterus, and a fairly strong patient is not a very dangerous proceedure in the hands of an experienced operator and that it is preferable to expose your patient to this comparatively slight risk of the operation than to the horrors of death from pelvic carcinoma.

23 Mackay Street, Montreal.

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Paranoia.

By Wm. Mabon, M. D., Ogdensburgh, N. Y.

Paranoia is one of the most interesting and widely discussed subjects in psychiatry.

Most of the criminal acts of the insane outside of institutions are committed by those who suffer from this disease, therefore, there is no form of mental alienation so important from a medico-legal standpoint as paranoia, except possibly epileptic insanity.

This disease has been more or less debated during the past fifteen years and has been variously designated as monomania, primary delusional insanity, systematized insanity, etc., but the term generally accepted by most alienists, is that used in the title of this paper. The importance of its early recognition by the general practitioner will be readily seen as we proceed with its description.

There are walking the streets to-day in almost every community, those who are considered by the public as eccentric or peculiar persons, indeed many of them are often classified under the opprobrious and generic modern term, crank. At any time, these peculiar individuals are likely to assault or kill without warning, some useful and law-abiding citizen. There are large numbers at large, and they constitute a real danger to society. It is only when some revolting crime, like the murder of Garfield or Carter Harrison takes place, that the public seem to appreciate that

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cranks are dangerous, and that the community needs protection against them. If Guiteau had been committed to a hospital for the insane when he first expressed his vagaries or manifested his eccentricities, the life of our martyred president would have been spared and Guiteau's own life would not have had to pay the penalty of his insane act.

Paranoia is defined by Spitzka as, "A chronic form of insanity based on an acquired or transmitted neuro-degenerative taint and manifesting itself in anomalies of the conceptional sphere, which while they do not destructively involve the entire mental mechanism, dominate it."

Regis says, "It is a chronic essential insanity, without disorders of the general activity, characterized by hallucinations, particularly of hearing; by delusions tending to become systematized, and ending in the transformation of the personality."

Kellogg says, "A type of insanity emerging from a constitutional neuro-pathic state, ordinarily hereditary, though exceptionally acquired, and characterized mainly by delusional ideation as to the personal environment and by hallucinations co-relative to the dominant and systematized delusions."

Taking any of the definitions, for they mean the same, we see that hallucinations, particularly those of hearing, and fixed delusions are the fundamental factors that lead, in individuals of defective heredity, to an entire change in the personality.

The emotional faculties may not be involved, in fact they rarely are, but the intellectual ones are frequently in a state of functional perversion.

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Patients who suffer from these fixed delusions are, as a rule, able to defend them more or less logically, but their reasoning of course is always from the wrong premises.

Krafft-Ebbing says, "These delusions were thought to remain like the precipitate after the violence of the mental manifestation had subsided. We now believe that these delusions are the result of brain irritation in the form of imperative ideas, unconscious impressions of the sense of smell, taste, sight and hearing."

In searching for a cause, we find, in a large proportion of cases, that heredity plays an important role, but it is not necessary that the ancestors should be insane to transmit the taint. Intemperance, the allied neuroses and physical infirmities, as syphilis or tuberculosis in parents, frequently result in producing in the off-spring the physical and mental stigma of degeneration. Less frequently, traumatism, infectious diseases, sunstroke, continued mental strain from domestic infelicity and business anxieties, bring about the acquired form of mental instability.

In individuals who suffer from either the acquired or transmitted form of neuro-degenerative taint, slight causes frequently operate in firmly establishing this disorder.

The beginning of this psychosis is usually associated with morbid sensations as headache, palpitation, ringing in the ears, twitching of the muscles, etc., which lead the patient to analyze his feelings and try to explain them. More frequently, however, these uncomfortable symptoms are referred to the digestive system, the sexual organs and to the head. The more the patient studies himself the more he finds that his symptoms increase. It is startling to him to learn with his bodily symptoms, that disorders of mentality appear; he feels that his intelligence is wan-

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ing. When the onset of this disease is slow, it frequently begins by some usual habit of thought becoming intensified. He cannot control his will-power, so that he soon attracts attention by acting out his thoughts and feelings. Regis says, "Thus far the future paranoiac resembles more or less strongly a simple hypochondriac for which, moreover, he may be mistaken; but soon by natural mental tendency, in which he is unlike all other lunatics, he begins to search for the cause of his troubles, not in himself but externally, and we have here, therefore, the first step in his psychic evolution. This evolution may, however, manifest itself without any preceeding hypochondria."

Being naturally suspicious and unable to explain his ill-feelings the patient soon refers to himself things that he sees and he misinterprets the ordinary conversations of others. He feels that people stare at him, that they look changed and that everything goes against him. He next becomes gloomy and downcast, being sometimes even tempted to commit suicide, but these discouragements and disappointments are, as a rule, only fleeting and to them he rarely gives up. He, in fact, resists them, determines to keep up the fight and goes into his morbid analysis deeper and deeper. He calls up in review his whole former life, affairs of trifling moment seem to him very suggestive and soon lead him to believe himself the object of some hidden antipathy. Just here there develops sensory disorders, or if they have already existed they have been kept in the back-ground. There are perversions of hearing, strange gustatory feelings and disturbances of the sense of touch and in fact the other special senses. With this development, we find the hallucinations and delusions becoming more prominent, and the patient passes into the

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second stage of the disease, or into what the French call the insanity of persecution.

The delusions in this stage are not clearly defined, being more or less confused. The individual believes in a general way that there is ill-will towards him, but why he is unable to understand. He speaks generally of his persecutors as "they;" saying, they try to poison me, they try to irritate and molest me, they slur at me, they defame me.

At first, the paranoiac complains of persecution, after which he seeks to place the blame. The Jesuits, the police and secret organizations are blamed for his troubles. In fact, any one and every one is liable to be brought into what he believes to be, the general scheme of conspiracy. These patients think that foul odors are blown to them through registers, chimneys, etc., that electric batteries are placed in their rooms and that telephones are often the means of carrying the insulting messages.

The hallucinations during this period increase and those of hearing become more audible and more insulting than formerly. At this stage of the disease, the patients sometimes claim to hear their own thoughts uttered as soon as they arise, and since they can hear their own thoughts, they believe that others can also and this idea, therefore, becomes almost unbearable to them. In some cases, the hallucinations have this peculiarity, that the paranoiac hears vile talk and obscene language with one ear, while through the other only pleasant and agreeable sounds are conveyed.

Hallucinations of sight are rather infrequent and when they do occur, refer, as a rule, to horrible images, terrifying grimaces, etc.

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In addition to the hallucinations of sight and hearing, those of the other senses play an important part, as for instance, some patients believe that they taste metallic substances and upon this hallucination build up the delusion of poisoning and either refuse to eat altogether or confine themselves to certain foods. In regard to perversions of general sensation, we find that patients complain of internal spasms, burns and cramps. They believe that their bowels are stretched and torn and that seminal fluid is drawn from them. Women frequently claim to be outraged and occasionally bring most annoying suits against the supposed offenders.

When paranoia has progressed thus far, we find that the patients act as though they were persecuted. They write to or call upon the police and courts for protection and frequently assail the judiciary because they are unable to relieve them of their distressing persecutions. They frequently change their residence to escape their supposed enemies but all to no purpose. After a time, they become discouraged and attempt to take justice into their own hands, and from now on, instead of being persecuted, they become persecutors. Here then, delusions pervert their judgment of right and wrong and their hallucinations constantly urge them to action. It is at this time that these patients are apt to make their homicidal assaults or to commit other criminal acts. We now find their delusions systematized and fixed and they begin to use oddities of speech to designate their persecutors or express their delusions. This sign is to the alienist strong evidence of incurability.

Individuals, when they become fully developed par-

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anoiacs are taciturn, quick to take offense, and answer questions, if at all, in a surly and abrupt manner.

In this persecutory stage, we find several distinct types as the religious, the litigious, erotic, political, etc., which pass by different routes into the third stage, or exalted, ambitious insanity.

We here find the change in the personality exhibiting itself in exalted delusions. In this transformation, at first, the delusions of ambition and exaltation are manifested side by side with feelings of persecution, but soon the patient begins to believe that he is a person of some importance and that his persecution occurs largely on account of his supposed station in life. Soon the exalted features predominate and crowd out somewhat the persecutory delusions. These are the signs of the gradual weakening of the patient's mind. He is not, however, demented. His delusions are still systematized although he does not defend them in so logical a manner as formerly, and is unable to appreciate that his delusions are inconsistent with his condition. One who considers himself the Almighty may be fervid in prayer, repeat his creed with earnestness and yet engage in menial labor, totally ignoring the incompatibility of his work with his pretensions.

The delusions of grandeur differ somewhat, according to the education that the patient has received or the state of his environment.

The delusions are necessarily modified by the hallucinations and if in this stage they still are dangerous, explanation is to be found in the special character of the delusions. Because he is exalted, it does not follow that the paranoiac is agreeable—he may still be egotistic and haughty, easy

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to take offense and eager and willing to avenge a supposed insult.

Paranoiacs may, and in fact frequently do, keep their delusions in the back-ground for a long time, but all the while they are resentful and are apt to scheme for the downfall of their enemies. This offers one explanation why this disease is of so much importance in a medico-legal sense.

Under the influence of delusions, a man may commit some breach of the law and yet many will testify in court that he is, and has been perfectly sane. In the making of a will, he may, actuated by his strong delusions, work great injustice, and yet how hard it would be to prove what delusions warped his judgement and controlled his actions.

In every asylum or hospital for the insane, we can always find a number of patients who belong to the class known as secondary paranoiacs. Among them, we find those, who after an acute attack of insanity have developed chronic delusions and have settled down into a permanent state of apparent quiet. Some of these are known as megalomaniacs and resemble those who in the last stage of paranoia show evidence of some mental weakness. Others are in a terminal condition following their mania or melancholia and from this naturally drift into a delusional state by reason of the hallucinations which existed. Cases suffering from either of these two-subdivisions of secondary paranoia are not, as a rule, dangerous, although some few may be exceedingly troublesome.

The following abstract of cases may be of interest to you and will help to illustrate certain features of this disease:

The description here given applies to each of the essential characteristics of the clinical varieties of the systemat-

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ized insanities and the principal feature is noticed in all, that is, that the delusions governing the conduct have a logical organization.

Case No. 1. Mary S. D.; age 51.

First attack of insanity was said to have occurred ten years ago, when for three months she was treated at Northampton, Mass., and was discharged recovered. It is claimed that her early symptoms were those of neur-asthenia. She was naturally of a nervous temperament and easily became excited. She was extremely particular in her dress, indeed to such a degree that she bathed so frequently as to affect her health, so the family thought. She gradually grew suspicious and thought that the men of the village were talking about her, calling her bad names, that the Masonic Lodge attempted to get possession of her in some way and was instrumental in spreading reports about her. At the time of her first admission to the St. Lawrence State Hospital, she appeared intelligent and talked coherently of her condition, saying that she had twitchings of the muscles of the hands and likewise that she had suffered much from insomnia, that her sickness had followed a shock due to the kidnapping of her brother's child from her, by its grand-parents.

She talked particularly about herself and her condition, and recognized the necessity of coming to a hospital for treatment.

Under treatment, she improved in physical condition, became more reliable in her conversation, although she continued to talk a great deal about herself and her symptoms and to ponder upon them and ask for explanations; she still was evidently suspicious. Six months after admission, she was removed by her friends in an improved condition,

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but she was somewhat erratic, although she had fair self-control and apparently manifested no delusions.

Nine months later, she was returned to the hospital in a more excitable state. It was learned that she had been living comfortably at home doing her usual household duties until a short time before her re-admission, when she complained that her neighbors and others annoyed her, attempted to injure and abuse her and she threatened to have them punished by law. She had hallucinations of hearing and believed that she was annoyed by spirits. She was markedly suspicious of the simple actions of strangers; imagined that a person walking by the house offered her an insult by the peculiarity of his steps. Thought that the neighbors were in league to injure her reputation. When admitted, she talked particularly about herself and her delusions. Said she had been greatly annoyed by one neighbor, who had stamped his feet in passing her house and another had offered her an insult by turning his head in the opposite direction while driving by in a buggy. She spoke of mesmerism and complained that spirits in the air disturbed her. Her delusions were apparently fixed and she defended them with argument. Since her second admission, her delusions have become more established and she imagines that there are men, who, by their actions, indicate that they want to marry her. She insists that she is not insane; is illegally detained, and urging this point frequently writes letters, which are filled with delusions.

Case No. 2; male; age, 50; married; Canadian; laborer; of good habits; admitted to St. Lawrence State Hospital for a second time April 9th, 1896. Family history, defective, mother having been insane for several years previous to her death. Habits absolutely temperate.

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History states that previous to the development of delusions, patient had been eccentric for a number of years. He first imagined that he had been specially chosen by God to preach the Gospel. He began by going about to private houses and preaching to individuals. Co-existent with the development of his religious delusions he manifested persecutory ideas, alleging that his wife and other members of his family and neighbors were persecuting him on account of his religious endeavors. During his first residence in the hospital, his history was not uneventful. He made endeavors to convert some of the more intelligent patients to his way of thinking and held prayer meetings on the ward during which he would occasionally break out in denunciation of his imaginary persecutors. He then maintained the idea that his removal to the hospital was a part of a scheme they had developed to get him out of the way. He was constantly on the lookout to escape and finally after a residence of six months did escape.

Upon his second admission to the hospital, it was noticed that the disease had progressed to a considerable extent and that he was somewhat exalted. His exaltation seemed to be due to the belief that he had been getting the upper hand of his persecutors and that his religious methods were going to triumph. He presented the physician admitting him, with a certificate printed in large type as follows: "*I believe Christ to be my present Saviour, sanctifier, healer and coming Lord. Signed Dr. D. C. W. member of Christian Alliance, State of New York.*"

During the interval between his escape and return to the hospital, he continued his peculiar methods of preaching and occasionally would get into personal altercations

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with some imaginary persecutor, who usually happened to be a member of his family. After a residence of ten months, he again eloped with another patient and returned to Canada. It was afterwards learned that he had inaugurated a lecturing and preaching tour with the arrangement that he was to be the preacher, and his associate to act as manager and handle the receipts, etc. Later it was learned that he had gone to Florida obviously to escape the persecution of his alleged enemies.

The patient who by heredity is not developed properly along certain lines is apt when puberty or some other physiological crisis occurs to become mentally unstable and to evince more pronouncedly his eccentricities. From his being naturally suspicious, he soon misinterprets words and acts, develops his delusions which are modified or increased by the hallucinations which soon appear. From this point, he becomes more completely controlled by his persecutory ideas which upon analysis, he attributes to his greatness and he then passes into the stage of ambitious insanity with the delusions of grandeur as a necessary adjunct.

It is this class of the insane which furnishes the kings, or the presidents and the Christs and it is also at this stage that the paranoiac, as a rule, becomes less dangerous and in some cases entirely harmless.

You can see in any given case, that each year there has been a greater deviation from the normal type.

From this somewhat imperfect description of the clinical history of this disease, it will be seen that the prognosis is most unfavorable. The usual termination is into a chronic state of exalted or ambitious insanity with more or less feeble-mindedness, and we find that periods of pol-

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itical change, international complications and matters that strongly engage public attention are apt to bring forward prominently those who suffer from the disease and in some instances they have had a large part in the history of their country. A modern instance of this is found in the case of Louis Riel, the leader of a Canadian uprising.

The duration of life in paranoia is usually prolonged. However, where the constitution has been weakened by phthisis or syphilis in parents, the disease progresses more rapidly to a fatal termination.

The pathology of paranoia must for the present be considered to consist in the transmitted or neuro-degenerative taint. We find the convolutions of the cerebrum to be assymetrical and the two hemispheres are frequently more unequal than in the normal man. The ganglionic element of the cortex appears occasionally to be impoverished and in some instances we find gross lesions.

The diagnosis of paranoia is not always as easy as one might suppose. Its early history may be, and frequently is, confounded with melancholia, but the patient who suffers from this latter alienation is humble, self-condemnatory, hopeless, thinks he deserves his sufferings, and claims to be the cause of suffering in others, whereas, the victim of paranoia is resentful, complaining, demands compensation for supposed injuries, is vindictive, sullen and taciturn.

In distinguishing between paranoia of the third stage and general paresis, we naturally find that there is a great difference between the fixed and systematical delusions of the monomaniac, which are logically supported by him, and the fleeting ideas of grandeur that belong to general paresis. In addition to the difference in delusions, the

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physical signs of the latter disease are absent in paranoia. A recent writer on the diagnosis of this disease says, "It not infrequently complicates simple insanity; paranoia being in the sense of the term a partial insanity, its victim is to a certain extent in the same position as to acquiring other diseases as a person of sound mind. We cannot say that a paranoiac at large is any less liable than any other person to become a maniac or melancholiac."

It has also been seen to complicate general paresis.

In all cases, there may be a special difficulty in the recognition of the underlying mental condition, and it, in its turn, often modifies the super-imposed mental state so as to disguise it in many of its most important features and to make it difficult to say just what to call the patient.

The treatment of paranoia of necessity cannot be well defined. It is of the greatest importance that children of peculiar temperament and those who have had transmitted to them the neuro-degenerative taint, should receive most careful and judicious training and education. Their childhood should be spent very largely in the open air, physical exercise should be firmly insisted upon, good wholesome food, suitable environment and regular hours should be the method of living.

An effort should be made to correct the physical vice of their constitution and avoid any habits of life which tend to brain stimulation. Such patients should not be forced into studies, nor be subjected to the competition with children of normal minds, which exists in our schools today. Indeed, their entrance into school should be retarded and progress in studies should be slow.

It is apparent, therefore, that the general practitioner can do much to prevent the development of this disease,

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and the time for treatment is during the earlier years of life. Healthy habits of action and thought will oftentimes remove in a degree the physical taints that have been inherited.

When hallucinations of hearing arise and delusions appear to be forming, an effort should be made to break up the self-centering habit by not allowing these individuals to seclude themselves from others and thus nurse their morbid symptoms. It is said that "bromide of potassium given regularly in large doses during this stage of the disease will sometimes allay the morbid susceptibility of the patient to external stimulation and thus frequently prevent the development of distressing delusions."

When paranoiacs develop fixed delusions of persecution and self-control is beginning to be lost, the best course of action is to commit them to a hospital for the insane or to place them under the complete control of those who will give them constant care and supervision.

When the medical profession come to realize that the unfortunate victims of persecutory delusions are dangerous, then the public will not be so generally exposed to the risk from them as they are at present.

In the ambitious, exalted or terminal stage of this disease where there has been a transformation of personality, but little can be done in a medical way. Patients are in this stage generally considered harmless, but it is well to bear in mind that some few terminal cases are dangerous, and rare discrimination is oftentimes necessary to determine just the degree of liberty that should be given to them.

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DISCUSSION.

Dr. Wm. N. Platt—I think the fact is well-known that the majority of cases are not sent to asylums. The trouble is, it is not clear what is a sufficient manifestation to commit a person to an asylum? Martin Luther was a paranoiac and his experience with the devil was all real to him. We have in society men who take a prominent place, who do a great amount of good, and yet they are suspected of partial insanity.

Dr. J. H. Woodward—I wish personally to thank the doctor for the very admirable paper. One point I would emphasize—management of children at school. I think we as physicians can do a great deal of good by paying attention to the way school children are managed at school. It is certain that cases of insanity are on the increase. We can begin and do most good by giving attention to the school children.

Dr. Mabon—Of course we do not consider all patients suffering from paranoia as dangerous. But when there comes to be a fixed delusion and when the dangerous stage approaches, as I suggested in the paper, then the patients should be looked after before they become actually dangerous. Of course there must be discrimination used in picking out the chronic cases, and only committing those whose liberty would be a menace to the community. The public should be protected from people of this class. It is true Martin Luther and Joan of Arc were both paranoiacs; they both had opportunity to give vent to their feelings; Luther in his war against the Church of Rome, and Joan of Arc in the war between France and England. Had it not been for that she would have been a very dangerous woman.

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Osteitis Deformans.

By F. T. Kidder, M. D., Woodstock.

This disease which was first described by Sir Francis Paget in 1872, and named by him osteitis deformans, which he called a form of chronic inflammation of the bones, with some peculiar characteristics, which would distinguish it from other forms of bone inflammation; is the same as that which Dr. Eugene Vincent writing a few years later, described as a benign hypertrophic osteomalacia. Although they are both describing the same disease, Dr. Vincent argues that his designation is the correct one as the process of inflammation and destruction or absorption of the bone is the same in the grave forms of osteomalacia and in osteitis deformans with the exception, that in osteomalacia absorption is so rapid that it prevents or destroys all deposition of bone, whereas in osteitis deformans, the process of absorption remains, as it were, in its stage of commencement and thus manifests itself in a more benign manner. It is certain that the disease is inflammatory in its nature, but it is not known, as far as I have been able to learn, whether the inflammation persists to the end or whether, having lasted a number of years, it gives place to a reparatory process. It is not associated with any of the constitutional diseases unless as Paget thought, it might have some association with cancer, as in three of his five cases, cancer showed itself toward the end.

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Should such prove to be the case, it could not be called a benign hypertrophic osteomalacia.

As I have said osteitis deformans is undoubtedly inflammatory in its nature, yet it is not accompanied by any of the ordinary signs of inflammation, with the possible exception of pain and that does not always attend it. It is a disease of middle or adult life and extremely slow in its progress, continuing for years, or until death supervenes from some other cause.

Usually there is nothing to call our attention to the disease, until changes begin to be noticed in the shape of the long bones of the legs and of the cranium, these are followed by a curving of the bones of the forearm, then of the humerus. The natural curves of the spine become more pronounced and unnatural curves may be added to them.

The head assumes a peculiar aspect, as the bones of the cranium thicken and enlarge, while the facial bones remain unchanged, giving the face and chin a very pointed appearance.

Although the bones become so curved, there is not, as a rule, an inclination to fracture, because the conditions of resistance are not destroyed. The only diseases with which it is liable to be confounded are rachitis, osteomalacia and accromegaly.

Rachitis can very readily be eliminated, as it is a disease of childhood, or in other words, a disease of the bones during their growth, whereas osteitis deformans is a disease of formed bone and comes on after middle life.

Osteomalacia is also a disease of formed bone, but Paget mentions as a diagnostic difference between it and osteitis deformans, that "in osteomalacia, the walls of the bones become excedingly delicate and thinned, as in acute atrophy,

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and when they bend it is not with a regular curve, but with an elbow or angular fracture." In distinguishing it from accromegaly, it is only necessary to remember the characteristic features of that disease, with the enlargement of the hands and feet, and of the facial rather than the cranial bones.

In the spring of 1890 I was called one evening to see a woman, sixty years of age, and found her with an intra-capsular fracture of the right femur, which was caused by catching the toe in the carpet, and without falling to the floor, fractured the bone. She made a very good recovery, but although the hip seemed as nearly perfect as it could be, she was afraid to walk without crutches, which she used till the summer of 1891, when she had another fall injuring the knee of her right leg. This she also recovered from and was again able to be about the house with the aid of her crutches.

About this time the family began to notice that her form was changing, that her head was growing larger, and she seemed to be getting shorter in stature; which condition has kept on until the present time, with a gradual increase of the deformaties. The bones of the legs have softened and are bent to a very marked degree, the bones of the forearm are also bent; the curves of the vertebral column are very much increased and a lateral curvature has also supervened. The cranium has increased in size from a circumference of about twenty-one inches to one of twenty-five and one-half inches.

The facial bones have remained unchanged, giving her face a very pointed appearance which is characteristic of the disease. Her general health during these years has been very good, until the summer of 1896, when she

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had an attack of hematuria and it was discovered that there was a large amount of albumen in the urine with many casts.

This improved with treatment, although the albumenuria has been constant since that time, with occasional attacks of hematuria.

She also has a marked dilatation of the heart, with the apex beat five and one-half inches to the left of the sternum. In January, 1897, she was seized one morning on attempting to get out of bed, with a severe pain in the lumbar region of the back, so that she was confined to the bed for eight weeks. Since that time she has been unable to use her crutches, being dependent on a wheel chair as a means of locomotion.

With the exception of this attack last January, she has at no time had any pain or fever, or any symptoms that would call her attention to the unnatural condition of the bones.

Although there has been such a great increase in the size, and so great a change in the shape of her head, there are not, nor have there been, any mental symptoms whatever, the mind being perfectly normal at all times.

This is a very typical case of osteitis deformans yet there are some things which do not generally accompany it.

In the first place there was the fracture of the femur which does not occur in this disease, but in this case, coming as it did, before any symptoms of the disease had been noticed, it may not have had any connection with the disease of the bone.

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In the second place there is the dilatation of the heart, not accompanied by any valvular insufficiency, but associated with a general arterial sclerosis.

In the third place, there is the disease of the kidneys which Paget and Vincent both claim does not accompany osteitis deformans as a result of it.

Of course it is possible that these diseases of the heart, blood vessels and kidneys may have nothing to do with the disease of the bones and may have originated entirely independent of that, yet it would almost seem as though the underlying cause of the one, was either directly or indirectly the cause of the other.

As regards the treatment of osteitis deformans, there is practically none, except in a general way.

Anything that would improve the general condition and the treatment of the symptoms, should any arise, that call for it, is all that can be done.

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Higher Medical Education.

By William T. Slayton, M. D., Hyde Park, Vt.

Mr. President and Gentlemen of the Vermont Medical Association:

It is with no little diffidence that I open up a subject which no doubt has been interesting to you all since the beginning of your professional education, but more especially during the past decade, marking as it does an epoch in the history of higher medical education and progress which would have been possible only in a country like ours, and which if continued at the present rate for a similar period to come will place us in a very desirable position.

But while congratulating ourselves on what has been accomplished let us "put not our hands to the plow and look backward," but push on with all our might a cause which means the advancement of the healing art and a constantly improving quality of graduates, who, in all probability, will, soon after receiving their much coveted diplomas, take the life of some human being into their hands. And let us ask ourselves if these improvements have not been worth all they cost in time and effort. Meanwhile let us ask ourselves what part of this work has been performed by the old Green Mountain State, a state which we, as her native sons, are proud to think is at least

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abreast of others in most things, but ashamed to say is sadly behind in this, one of the most important questions of the day. It is true that efforts have been made to place her in her proper position among her sister states, but it is no less true that those same efforts have come to naught, possibly through the efforts of irregulars and charlatans, but more probably through lack of effort on the part of regular practitioners. There are those who have suggested that the time is not propitious and that we should wait for a favorable legislature to secure our ends, legislation being our only means. But as well may an ocean liner wait for a favorable moon in which to put to sea as for us to wait for a favorable legislature to give us that which we are justly entitled to and which it would gladly accord if it were fully conversant with and realized the importance of the subject. If the legislature is not favorable let us educate the members to make them favorable. Can we not convince them that Vermont is the only eastern state which will accept any kind of a medical diploma, and is, with one exception, the only one in which a state examination is not required; consequently is a dumping-ground for the rejected candidates of the surrounding states and the Dominion of Canada. And can we not convince them that there are stock company medical colleges—so-called—by the score, which are conducted by men interested only in their pocket-books and the name professor, whose only aim is to afford students an opportunity to secure their degree in the quickest time possible, regardless of their actual knowledge of the science of medicine, the only requirements for admission, for all practical purposes, being that the student shall know the multiplication table and prove his ability to name a half-dozen ex-presidents. If not,

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then, let us acknowledge our impotence and humbly bow our heads, convinced that we are the inferiors of men in other walks of life and that the Vermont Legislature has no respect for the profession of medicine.

But, while we are waiting for all this to come about, let us reflect on what has been done elsewhere. During the past year the profession of Arizona have succeeded in obtaining a territorial board of medical examiners, the board to examine all candidates for license to practice who are graduates of reputable medical schools. Idaho has passed a similar though better law—better because the board has the authority to revoke certificates, after hearing, for unprofessional, dishonorable or immoral conduct. New Hampshire is in line with a law creating three state boards of examiners, and requiring that all candidates for examination shall have had a preliminary education equivalent to a full first-grade high school course, and that they have studied medicine four years, including four annual courses of at least six months each. Iowa has taken a step in advance by securing an amendment to her law, requiring an examination of all candidates applying for registration after January 1, 1899. Indiana and Wisconsin have succeeded in establishing state boards, although, as yet, they will accept a diploma from a recognized college. All these help to complete a year of great progress.

We have in this country at the present time twenty-nine states and the District of Columbia requiring an examination, and fifteen other states, although not requiring an examination, have such stringent rules governing the recognition of colleges that they are equal to one. Even the Cherokee nation in the Indian Territory requires an

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examination of all applicants to practice before a board of examiners appointed by the principal chief.

One hundred and seventeen of the one hundred and fifty medical schools of the United States require attendance on four annual courses of lectures, of which number twenty-seven require attendance of sessions of eight months and ten of nine months each year. Our own State University has just lengthened its course to four years, and may she go still further by requiring attendance on nine months each year instead of six, as several other universities, located in smaller towns than Burlington, have done—one in particular being the University of Michigan, which has required four annual courses of lectures of nine months each since 1891—and perhaps after that she may see fit to adopt a higher standard for admission than is now required, especially as states on either side of us, as well as several others, have recently passed laws which will help those schools that try to raise their standards, by accepting less than a high school diploma of the first grade.

In connection with the four years' course, it is interesting to note that there are but three schools in the northern states, excepting Missouri and including Kentucky and Maryland, which require attendance on less than four annual sessions. Those three are the Medical Department of Bowdoin College, Brunswick, Me.; Milwaukee Medical College, Milwaukee, Wis.; and the Baltimore University School of Medicine, Baltimore, Md. This cannot be said of the southern schools, as the majority of them still adhere to the three-year plan. Just what they expect to gain by this it is difficult to understand, as their reputation will certainly suffer in the end, especially as there are eleven states in which their

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diplomas will not be recognized, as will be noticed by a glance at the map* which has been distributed to you. The legislatures of a part of these states have prescribed the four-years standard, and the state boards of the remainder have helped the cause along by announcing that a diploma from a college which requires less than a four years' course would not be recognized by them. Some of the boards are passing very stringent resolutions in regard to the clinical advantages which schools shall have to entitle them to recognition.

Dr. Potter of the New York State Board, says that it has been asserted in certain quarters that state boards are antagonistic to colleges, that they are setting up standards of their own and that their rules are oppressive to the schools. He adds that nothing in his view could be further from the truth and that the real facts are that the boards and the colleges are working along parallel lines to accomplish the same ends, viz., an improvement in the quality of physicians admitted to practice in the United States. Moreover, there is harmony of action between them that is remarkable, considering the radical changes that have necessarily been wrought in methods of teaching as a result of the practice laws.

If the schools in many instances have waited for mandatory laws to raise their standards and increase their years of study, they must not complain that the rank and file of a great profession has arisen in its might and through its constituted state medical societies demanded laws of the several state legislatures that shall advance the cause of higher medical education. The examining boards are merely the

*From "Medical Education and Registration, United States and Canada," 987, by Wm. T. Slayton.

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servants of the people in this matter—are simply instruments through which their will obtains definite expression.

In view of all these changes, what is to become of the graduates whose schools are not recognized in most states? Will they not follow one of the natural laws and find the weakest spot, viz., a state in which there are practically no requirements? If so, do the people of that state want men whose diplomas are not recognized or who have been rejected in other states, and will the medical profession, as a whole, stand as high in such a state? There can be but one answer to this and that is, most emphatically, no.

Now that we have diagnosed the difficulty let us see if we can find a remedy. The answer can be nothing short of yes, if every man will do his duty; and has not Vermont and its State Medical Society as much right to expect every man to do his duty as had England or Nelson at Trafalgar. That duty can be at least partially performed by seeing that every member of the State Legislature has correct information on the subject and by convincing him that no particular class of practitioners shall be discriminated against, but that the requirements will be the same for all, excepting in the matter of therapeutics, and if the applicant is not willing to submit to a fair and impartial test by examination, that he is not a fit person to take the lives and happiness of his fellow-citizens in his hands. The question next arises as to who shall examine the applicants. By all means let it be one joint board instead of a separate board for each school, thereby insuring equality of standard. The opinion is strongly supported by a majority of practitioners in other states, as is attested by the fact that in twenty-nine states where examinations are required seventeen have but one board, and out of the forty-five states having state boards only sixteen have more than

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one. If the governor is to have the appointing power, he should be required to restrict his appointments to a list of candidates placed in nomination by the three state medical societies. Perhaps it would be as well to require also that not more than two-thirds of the board should be members of any one political party. It should be the duty of the board to examine all candidates for a license who are graduates of medical schools recognized by them. In this way they would be able to raise the standard by passing resolutions which would increase the requirements of medical schools as to admission, periods of study, facilities, etc., as is done in many other states, and last but not least, they should be required to revoke certificates after hearing for unprofessional, dishonorable or immoral conduct. In connection with this the writer has been informed that in states where this provision has been enforced there is not one traveling advertiser or man who advertises in any form, but whether we are to have one, two or three boards, let us have something and that at once.

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Obituary of Dr. Geo. E. Lane.

By W. N. Bryant, M. D., of Ludlow.

George E. Lane was born at Westminster, Vermont, February 13th, 1834. Preparing for college at Black River Academy, Ludlow, he graduated from Middlebury in 1859. The next three years he devoted to teaching, being principal of Leland and Gray Seminary, Townshend, Vt., after which he pursued a medical course at Burlington, graduating with the class of 1864.

He first settled for the practice of his profession at Williamstown, this State, where he did successful work for fourteen years, then removing to Ludlow where he continued in active practice until his death, which occurred very suddenly on November 7th, 1895, as the result of acute pulmonary œdema from (probable) embolism. Having some years previously buried his wife, he is survived by two sons, one of whom is now a student in the Medical Department of our State University.

Perhaps the most salient characteristic in his useful, busy and all too short professional career, was his absolute *trustworthiness* under all circumstances. Conservative and somewhat obstinate by nature, he possessed in a high degree those sterner puritanical virtues which some of us, perchance, hold too lightly.

A firm believer in the "code of ethics" he interpreted its provisions in a literal sense, and was withal a man whom even a competitor might trust—and this means much.

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Dr. Lane was a man of sterling integrity and generous impulses; a most conscientious and painstaking physician, deserving and receiving the highest respect and confidence of the communities in which he lived. Added to this was a kindly, genial and sympathetic nature, making him much loved by the families for whom he labored.

A balance on the wrong side of the ledger cut no figure in his dealings with patients; nothing but absolute inability served as an excuse for refusing his services.

"His failings leaned to virtue's side", and if he was guilty of injustice it was to himself rather than to his patrons.

He was an earnest member and an active supporter of the Baptist church.

His death was almost tragic in the suddenness and circumstances of its occurrence. Together with the writer, he was consulting at night over a case of railroad injury—a crushed leg requiring amputation. Needing a rubber bandage the doctor started for his office, not many rods distant, to obtain it, but had scarcely reached the street when, being hastily summoned, I found him suffering from intense dyspnœa, death occurring before he could be conveyed to his home or measures for relief be tried. It is now known that for some time previous he was well aware of organic heart disease and the probabilities of its sudden termination—a fact which he carefully concealed from his closest friends, sparing himself not at all in his labors.

A careful review of Dr. Lane's life affords much to admire and praise, little to criticise, and we turn from the task involuntarily quoting the words of Pope:

"An honest man 's the noblest work of God."

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Obituary of B. W. Davis, M. D.

By J. H. Hamilton, M. D., of Richford.

Dr. Bateman W. Davis was the eldest son of Joseph and Melinda Davis, and was born at Montgomery, July 26th, 1844.

He was educated at the common schools of his town and at Fairfax and Bakersfield Academies.

He taught several terms of school, and held the office of town superintendent for a number of years.

He was married to Miss Frances H. Campbell of Montgomery, Vt., March 12th, 1867, who died April 16th, 1892, leaving two children, a son and daughter.

November 27th, 1892, he married Mrs. Agnes M. Taft of Millport, New York, who now survives him, and also the two children by the first marriage, and a brother, Dr. Edwin Davis of Hartford, Conn.

The Doctor followed farming for several years, but in 1872 he left the farm and began the study of medicine in the office of Dr. S. S. Wilbur.

July, 1875, he graduated from the Medical Department of the University of Vermont, and immediately began the practice of medicine in his own town.

In 1880 he took a post-graduate course at the University of New York, and continued the practice of his profession in Montgomery until the time of his death, which occurred August 21st, 1897.

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Dr. Davis was what might be termed a successful practitioner. He had gained very largely the confidence of the people; not by tact but by careful study of his cases; by painstaking persistent work. He was not over-confident in his own ability and skill, conscientious, he always gave his patients the benefit of early counsel.

Dr. Davis was a Mason, a member of Mississquoi Lodge, No. 9, and of Lafayette Chapter, R. A. M.

He became a member of the Vermont State Medical Society June 15th, 1880, and was an active member of the Franklin County Medical Society, and was elected its President, May, 1889.

As a man and citizen, he was highly esteemed by all who knew him. He was elected by his town a member of the General Assembly of 1895.

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CONSTITUTION AND BY-LAWS

OF THE

Vermont State Medical Society

(As revised October, 1892 and amended October, 1895, October, 1896 and October, 1897.)

CONSTITUTION.

ARTICLE I.—NAME.

This Society shall be called the Vermont State Medical Society.

ARTICLE II.—OFFICERS.

The officers of this Society shall be a President, Vice-President, Secretary, Treasurer, Auditor, Publication Committee of three members, of which the Secretary shall be chairman, Executive Committee of three members, of which the Secretary shall be one *ex-officio*, a Committee on Necrology of three members, a Committee on Membership of three members, and a Board of License Censors, consisting of three members, all of whom shall be elected annually at the opening of the second day's session, by ballot when demanded by any member present, (except the Committee on Membership, which shall be elected at the morning session of the first day), or in such other manner as the Society

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shall direct, and shall hold their respective offices until the close of the next annual meeting, and until others are chosen.

ARTICLE III.—MEETING.

There shall be an annual meeting of this Society held on the first Thursday and Friday after the second Wednesday in October, at such place as shall be designated by vote, at the previous annual meeting.

ARTICLE IV.—MEMBERSHIP.

Any physician residing within the State, who is a graduate of a regular recognized Medical School, may become a member of this Society at any regular meeting, upon recommendation of the Committee on Membership and vote of the Society, by signing the constitution and paying the sum of three dollars to the Treasurer.

ARTICLE V.—DISCIPLINE.

Any member of the Society guilty of intoxication, unprofessional or irregular practice, or of gross immorality, or for other good reasons, may be expelled or suspended from the Society by a vote of two-thirds of the members present at any annual meeting.

ARTICLE VI.

This Constitution may be repealed, altered or amended at any annual meeting, by a vote of two-thirds of the members present, provided such repeal, alteration or amendment be proposed at a previous annual meeting.

ARTICLE VII.

This Society may adopt such By-Laws, not repugnant to this Constitution, and may repeal, alter or amend the same, in such manner as a majority at any annual meeting may deem proper.

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BY-LAWS.

ARTICLE I.—Duties of Officers.

Section 1. The President shall preside at all meetings, and perform all the duties incident to such office. He shall deliver, or cause to be read, an address or dissertation on some medical subject at the annual meeting at which he presides.

Sec. 2. The Vice-President shall preside in the absence of the President, and perform all his duties and possess all his privileges. He shall deliver, or cause to be read, at the opening of the afternoon session, on the first day of the annual meeting, an address on medicine or surgery.

Sec. 3. The Secretary shall keep a record of the proceedings of the Society, and of the members present at each meeting; shall arrange and publish the programme at least two weeks before each meeting; shall conduct the correspondence; shall procure a stenographer to report the proceedings of each meeting; and shall have his necessary expenses defrayed from the funds of the Society. He shall, if unable to attend the meeting of the Society, personally, send the records to some member in attendance. He shall receive an annual salary of fifty dollars.

Sec. 4. The Treasurer shall collect and disburse all moneys of the Society, agreeably to their directions, and make report of his doings to the Society at its annual meeting.

Sec. 5. The Auditor shall examine and verify the accounts of the various officers.

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SEC. 6. The Executive Committee shall make selection of a subject or subjects for the programme and appoint a Committee of Arrangements of three members, for the next ensuing meeting ; shall make assignments of the parts to any of the members, as in their judgment they think advisable, and report the same to this meeting and to each and every subsequent meeting.

They shall make such other arrangements for the meetings of the Society as they shall deem essential for its best interests.

SEC. 7. The Committee of Arrangements shall be residents of the town where the meeting is to be held. They shall make arrangements for the place of meeting, for a banquet on the evening of the first day and for space for medical and surgical exhibits and such other local arrangements as they may deem essential for the success of the meeting.

SEC. 8. The Publication Committee shall receive all papers referred to them by the Society, and as soon as possible subsequently to the annual meeting of the Society, shall publish such of those papers as they may deem best suited to promote the interests of the profession and the public good, under the title, Transactions, and perform all other appropriate duties.

SEC. 9. The duties of the Committee on Membership shall be to examine the credentials and qualifications, with reference to their method of practice, etc., of persons desirous of becoming members of the Society, and present at each meeting the names of such, as in their opinion, are eligible to membership under the Constitution and Regulations of the Society. They shall recommend for membership, only such physicians as shall present to them their diplomas, or a certificate in writing signed by some member

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of the Society, in good standing, stating that he has personal knowledge that said applicant has a diploma of a regular medical school.

SEC. 10. The Committee on Necrology shall report the names of deceased members and shall cause to be prepared such brief biographies as may in each case be deemed best.

SEC. 11. It shall be the duty of the Board of License Censors to issue license certificates to regular physicians wishing to practice medicine in this State, in accordance with the State law regulating such practice.

ARTICLE II.—DUES.

SEC. 1. Every member of this Society (honorary excepted) shall pay to the Treasurer an annual fee of three dollars.

SEC. 2. Any member who shall fail to pay his dues for a period of three years, shall be dropped from the Society, and his name stricken from the roll of membership, and he shall be so notified by the Treasurer.

SEC. 3. Any member who has been dropped from the Society for the non-payment of dues may be reinstated by paying all arrears, or re-elected after any number of years by a vote of three-fourths of the members present at any regular meeting, upon payment of three years' arrearages.

SEC. 4. No member shall receive the Transactions unless his dues are paid for the fiscal year or years, for which they are issued.

ARTICLE III.—HONORARY MEMBERS.

The Society may elect at each annual meeting, not more than two honorary members, non-residents of the

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State, who shall have the same privileges as ordinary members, except that they shall not be eligible to office, nor have the right to vote.

ARTICLE IV.—DELEGATES.

Delegates shall be appointed annually to represent this Society in the American Medical Association; the Medical Department of the University of Vermont, and of Dartmouth College at the examination of candidates for graduation, and credentials shall be issued to such delegates by the Secretary when he is duly notified of the time and place of such examinations; the Connecticut River Valley Medical Society; the White Mountain Medical Association; the White River Valley Medical Association; the Northern New York Medical Association; the State Medical Societies of the New England States, together with those of New York, and such other States and Societies as the mutual interests of the Societies may direct.

In cases where delegates are unable to attend to the duties of their appointment, it shall be their duty to notify the Secretary of such inability, and the Secretary and President shall appoint others to supply their places.

ARTICLE V.

One member of the Society shall be appointed by the Secretary to open the discussion on each paper to be presented at any meeting.

ARTICLE VI.

Any member wishing to withdraw from the Society shall be permitted to do so on his written request after he shall have presented the Treasurer's receipt for all moneys due.

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ARTICLE VII.

The Constitution and By-Laws, together with the names and residences of the members in good standing shall be published in every volume of the Transactions.

ARTICLE VIII.

The names of the deceased members of the Society, with the dates of birth, graduation, admission to membership, death and such other items in brief, of personal history, as may seem desirable to the Committee on Publication, shall be printed in each copy of the Transactions, under the caption, "In Memoriam."

ARTICLE IX.

No author shall consume more than twenty minutes in reading or presenting a paper, and no one shall speak more than five minutes in the discussion of a paper, without unanimous consent of the members present.

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List of Members.

Adams, G. F. ..... Derby
Aldrich, W. J. ..... St. Johnsbury
Allard, O. F. ..... Burlington
Allbee, E. S. ..... Bellows Falls
Allen, C. E. ..... Swanton
Allen, Joel ..... Burlington
Allen, J. M. ..... St. Johnsbury
Andrews, B. J. ..... Burlington
Arkley, A. T. ..... Essex Junction
Badger, F. D. ..... Coventry
Baker, O. C. ..... Brandon
Barker, H. A. ..... Burlington
Barrows, H. W. ..... Stowe
Baylies, F. W. ..... Burlington
Bean, J. H. ..... Sheldon
Belden, G. W. ..... Jericho
Berkley, G. C. ..... St. Albans
Bingham, A. L. ..... Williston
Bingham, L. M. ..... Burlington
Bisbee, A. B. ..... Montpelier
Blake, W. C. ..... Lyndon
Blanchard, J. F. ..... Newport
Blanchard, R. H. ..... St. Johnsbury
Brewster, J. D. ..... Windsor
Brigham, C. W. ..... Pittsfield
Brigham, F. L. ..... Pittsfield

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Brown, E. M. ..... Sheldon
Brown, H. S. ..... St. Johnsbury
Bryant, W. N. ..... Ludlow
Bugbee, A. G. ..... Derby Line
Bullard, G. B. ..... St. Johnsbury
Bullard, H. G. ..... St. Johnsbury
Burnette, W. S. ..... So. Royalton
Bushnell, E. H. ..... Jeffersonville
Camp, C. F. ..... Barre
Campbell, E. R. ..... Bellows Falls
*Canfield, R. M. ..... Stanstead, P. Q.
Carpenter, F. W. ..... West Rupert
Caverly, C. S. ..... Rutland
*Chaffee, F. F. ..... Hartford
Chandler, C. E. ..... Montpelier
Chandler, M. L. ..... Barre
Chase, R. M. ..... Bethel
Cheeney, A. A. ..... Lyndonville
Church, W. G. ..... Morrisville
Claflin, A. A. ..... St. Albans
Clark, F. E. ..... Burlington
Clarke, J. M. ..... Burlington
Crain, M. R. ..... Rutland
Crandall, H. A. ..... Burlington
Cummings, Wm. F. ..... Rutland
Darling, S. E. ..... Hardwick
Darrah, A. J. ..... Enosburgh Falls
Davenport, George ..... E. Randolph
Davidson, A. ..... St. Albans
Davis, O. O. ..... Northfield
Dunsmore, George ..... St. Albans

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Dyer, O. G. ..... Brandon
Eddy, M. H. ..... Middlebury
Erwin, C. L. ..... Newport Center
Fairman, E. P. ..... Hardwick
Ferrin, C. M. ..... Essex
Flanders, W. G. E. ..... Burlington
Foster, George S. ..... Putney
Fox, G. H. ..... Rutland
Gale, H. L. ..... Barre
Gartland, T. F. ..... White River Junction
Gay, F. C. ..... Brownsville
Gibson, C. R. ..... Woodsville, N. H.
Gibson, J. M. ..... McIndoes Falls
Gillette, L. H. ..... Wilmington
Goodall, F. W. ..... Bennington
Gorham, G. H. ..... Bellows Falls
Gray, F. S. ..... Troy
Greene, L. M. ..... Bethel
Greene, O. D. ..... Bethel
Grinnell, A. P. ..... Burlington
Hamilton, J. H. ..... Richford
Hamilton, J. M. ..... Proctor
Hanrahan, J. D. ..... Rutland
Hawley, C. F. ..... Fairfax
Hawley, D. C. ..... Burlington
Hazelton, D. W. ..... Springfield
Heath, W. L. ..... Richmond
Hemenway, L. H. ..... Manchester
Herrick, V. B. ..... Montgomery
Hill, J. S. ..... Bellows Falls
Holcombe, L. C. ..... Milton
Holton, H. D. ..... Brattleboro

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Hooker, E. G.....Waterbury
Howard, J. A.....Alburgh Springs
Howe, H. T. J.....Waitsfield
Hubberd, L. W.....Lyndon
Hulbard, Geo. B.....Jericho
Hunt, C. N.....Montpelier
Huntington, W. D.....Rochester
Huntington, W. M.....Rochester
Hutchinson, Wm. R.....Enosburgh Falls
Hyde, W. B.....St. Albans
Ide, H. C.....St. Johnsbury
Jackson, J. H.....Barre
Jackson, Jos. W.....Barre
Jackson, S. W.....Barre
Janes, Henry.....Waterbury
Jacobs, C. W.....Richmond
Jenne, J. N.....St. Albans
Johnson, R. T.....West Concord
Keenan, J. C.....Rutland
Kemp, D. G.....Montpelier
Kidder, F. T.....Woodstock
Kinney, F. C.....Greensboro
Lance, A. J.....Worcester
Lawton, S. E.....Brattleboro
Lazelle, W. E.....Plainfield
Lee, H. H.....Wells River
Liddle, F. C.....Dorset
Linsley, J. H.....Burlington
Manchester, H. S.....Pawlet
Manure, W. S.....St. Albans
Marshall, G. G.....Wallingford
Martin, E. H.....Middlebury

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Maston, C. H.....Alburgh Springs
Maynard, S. E.....Burlington
McGuire, W. F.....Montpelier
McMahon, P. H.....Burlington
McSweeney, J. E.....Barre
McSweeney, P. E.....Burlington
Miller, A. I.....Brattleboro
Miner, A. L.....Weston
Morgan, F. C.....Felchville
Morris, G. P.....Randolph
Nay, W. S.....Underhill
*Nelson, J. R.....St. Johnsbury
Newell, H. L.....Rutland
Newton, C. P.....Underhill
Newton, G. H.....Cambridge
Newton, J. P.....Benson
Osgood, F. L.....Townshend
Page, F. C.....Johnson
Paige, S. W.....St. Albans
Peck, C. W.....Brandon
Peck, O. W.....Winooski
Pelton, R. M.....Richford
Perkins, O. H.....Montpelier
Petty, C. W.....Keeler's Bay, South Hero
Petty, F. A.....Fairfax
Phelps, F. C.....Vergennes
Platt, William N.....Shoreham
Pond, E. M.....Rutland
Porter, Edwin.....Northfield
Prentiss, R. G.....Johnson
Rich, F. A.....Burlington
Richmond, Deane.....Windsor

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Richmond, J. S.....Windsor
Ried, W. D.....Barre
Robertson, F. D.....St. Albans
Rogers, Lyman.....Bennington
Ross, C. B.....West Rutland
Ross, E. H.....St. Johnsbury
Russell, C. J.....Hinesburgh
Rustedt, Geo.....Rutland
Scofield, C. S.....Richford
Scott, A. W.....Lunenburgh
†Scott, C. A.....Tyson
Scribner, C. M.....Barre
Sears, F. W.....South Hero
Senton, B. C.....Rutland
Sherwin, O. W.....Woodstock
Sherwood, R.....St. Albans
Shipman, E. W.....Vergennes
Skeeles, A. A.....Highgate Center
Skinner, R. B.....Barton
Slayton, W. F.....Hyde Park
Smith, C. C.....Gaysville
Sperry, C. A.....Quechee
Staples, Hall.....Grafton
Stiles, T. R.....St. Johnsbury
Stoddard, F. R.....Shelburne
Strobell, C. W.....Rutland
Sutner, C. S.....Richford
Swift, H. H.....Pittsford
Tanner, J. D.....Winooski
Tesson, L. S.....Fort Ethan Allen
Townshend, H. S.....Bridport

†Deceased.

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Thompson, W. N. ..... Brattleboro
Tinkham, H. C. ..... Burlington
Townsend, W. W. ..... Rutland
Twitchell, M. C. ..... Burlington
Upham, E. F. ..... Randolph
Vincent, W. H. ..... Orwell
Ward, Artemus ..... Canaan
Warren, M. D. ..... Cabot
Watkins, H. R. ..... Burlington
Watson, E. B. ..... Williamstown
Welch, R. E. ..... Franklin
Weston, E. S. ..... New Haven
Wheeler, J. B. ..... Burlington
White, P. P. ..... Williamsville
Wilder, H. R. ..... Swanton
Willard, A. J. ..... Burlington
Woodhull, J. B. ..... South Bennington
Woodward, A. T. ..... Brandon
Woodward, J. H. ..... Burlington
Worthen, H. O. ..... Barre

HONORARY MEMBERS.

		Elected.
Conn, G. P.	Concord, N. H.	
Crothers, T. D.	Hartford, Conn.	1892
Douglas, O. B.	New York, N. Y.	1891
Ferguson, E. D.	Troy, N. Y.	1896
Field, A. E.	Barre, Vt.	1890
*Frost, C. P.	Hanover, N. H.	1886
Gordon, S. C.	Portland, Me.	1895
Irish, J. C.	Lowell. Mass.	1894

*Deceased.

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Kellogg, D. S	Plattsburgh, N. Y	1892
Lyon, E. M	Plattsburgh, N. Y	1892
Mabon, Wm	Ogdensburgh, N. Y	1897
Marcy, Henry O	Boston, Mass	1896
Porter, Wm. H	New York, N. Y	1895
Ransom, J. B	Dannemora, N. Y	1889
Shattuck, Frederick C	Boston, Mass	1894
Watson, H. P	Haverhill, N. H	1887

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Society founded in 1814.

List of Presidents

Since 1851.

		Elected
Goldsmith, M	Rutland	1851
Palmer, B. R	Woodstock	1852
Thayer, S. W. Jr	Northfield	1853
Warner, E. D	New Haven	1854
Perkins, Joseph	Castleton	1855
Carpenter, Walter	Randolph	1856
Stevens, H. F	St. Albans	1857
Allen, C. L	Middlebury	1858
Knights, A. E	Springfield	1859
Morgan, B. F	Bennington	1860
Woodward, A. T	Brandon	1861
Stiles, J. N	Windsor	1862
Bradford, P. D	Northfield	1863
Fassett, O. F	St. Albans	1864
McCollom, William	Woodstock	1865
Warner, E. D	New Haven	1866
Frost, C. P	Brattleboro	1867
Richmond, J. S	Woodstock	1868
Janes, Henry	Waterbury	1869
Putnam, S	Montpelier	1870

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Upham, E. F	West Randolph	1871
Holton, H. D	Brattleboro	1872
Butler, L. C	Essex	1873
"	"	1874
"	"	1875
Dunsmore, George	St. Albans	1876
Chandler, C. M	Montpelier	1877
Bullard, G. B	St. Johnsbury	1878
Thayer, S. W	Burlington	1879
Jackson, J. Henry	Barre	1880
Sherwin, O. W	Woodstock	1881
Bingham, L. M	Burlington	1882
Clark, S. S	St. Albans	1883
Draper, Joseph	Brattleboro	1884
Kemp, D. G	Montpelier	1885
Brooks, S. T	St. Johnsbury	1886
Campbell, Edw. R	Bellows Falls	1887
Clarke, J. M	Burlington	1888
Brown, H. S	St. Johnsbury	1889
Jenne, J. N	St. Albans	1890
Caverly, C. S	Rutland	1891
Wilder, H. R	Swanton	1892
Bisbee, A. B	Montpelier	1893
Linsley, J. H	Burlington	1894
Branch, C. F	Newport	1895
Stoddard, F. R	Shelburne	1896
Rogers, Lyman	Bennington	1897

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Medical Laws of Vermont.

PRACTICE OF MEDICINE AND SURGERY, CHAPTER 172, REVISED LAWS, 1880.

SECTION 3908. Medical societies, organized under a charter from the general assembly shall at each annual session, elect a board of censors, consisting of three members, who shall hold their office till others are elected; which board may examine and license practitioners of medicine, surgery and midwifery.

3909. A practitioner of medicine, surgery or midwifery, who, by sign or advertisement, offers his services to the public as practitioner of either medicine, surgery or midwifery, or who, by such sign or advertisement, assumes the title of doctor, shall obtain a certificate from one of such medical societies, either from a county, district or State society.

3910. A person not a resident of this State, who has not received a diploma from a chartered medical college, shall obtain a certificate from a board of censors in this State before he shall be permitted to practice the medical art in this State.

3911. Each board of censors shall issue certificates, without fee, to physicians and surgeons who furnish evidence, by diploma from a medical college or university, or by certificate of examination from an authorized board,

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which satisfies said censors that the person presenting such credentials has been, after due examination, deemed qualified to practice the branches mentioned in such diploma or certificate.

3912. The censors of each medical society aforesaid shall, in their discretion, notify practitioners of medicine, surgery or midwifery of the terms of this chapter, and shall require such persons to comply therewith within thirty days after such notification, or within such further time as is allowed by the censors, not exceeding ninety days.

3913. The certificate shall set forth that said censors have found the person to whom it is given qualified to practice the branches of medical art mentioned in it, and shall be substantially in the following form :

No..... *Certificate.*

STATE OF VERMONT. }
COUNTY OF ——. } SS.

This may certify that the undersigned board of censors have found A. B., of ———, in the county of ———, and State of ———, qualified in the following branches of the medical profession : ————; and therefore license him to practice said branches within this State.

———

———

———

Board of Censors of Medical Society.

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3916. *Penalty.* A person who practices medicine, surgery or midwifery in the State, or signs a certificate of death for purposes of burial or removal unless authorized so to do, by a certificate and recorded as provided, shall for the first offense be fined not less than fifty, nor more than two hundred dollars, and for subsequent offenses, not less than two hundred, nor more than five hundred dollars, which fine may be recovered in an action of debt for the use of any person who sues therefor or by an indictment.

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Public Health.

By E. A. Bates, M. D., Highgate.

Mr. President and Gentlemen of the Vermont State Medical Society:

From the time that man in his process of development increased in numbers, and became a town dweller, and consequently advanced in civilization, he realized, through his own selfishness, or as we will more charitably suppose, love of humanity, the necessity of general cleanliness as witness the proverb, "cleanliness is next to Godliness;" which is so true that I presume none would prefer an ungodly clean man to a godly dirty one, if it is possible to be constantly dirty and at the same time godly, and as we go back to the dawn of history we find among those peoples and cities who stood pre-eminent among their fellows, two things, which stand out so distinctly that they command our admiration and respect.

First. Their public water supply.

Second. Their system of public baths.

This goes back even farther than the dawn of history both sacred and profane, and as the ruins of buried and lost cities whose histories have never been written, whose age antedates written history, give up their secrets to the scientist and explorer, we find again public baths and

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means of pure water supply. Even the Spanish conquerors of Mexico and Peru, who had eyes for nothing but the gold of the new world, were struck with wonder and amazement at the public roads, fountains, drinking places, aqueducts crossing valley and mountain, public baths and parks, planned and built by a people, whom they regarded as savages, whose weapons were stone and copper, whose defensive armor was feathers and cotton. And yet this people had advanced in civilization and knowledge to that point where they realized the necessity and importance of the public health, thus conclusively showing to us that the problem of public health is no new nor idle chimera but a stern and solemn factor in the struggle for existence of the human race and one that in all ages and especially among the enlightened people among republics and principalities has been considered of vital importance to the public, and at no time in our history or in the history of the past, has intelligent or organized effort met with as much encouragement and success as it is doing to-day among all classes.

The creation of a State board of health in Vermont was the direct teaching and advocacy of matters pertaining to the public health by the medical profession of this State. This board has in the past ten years done good work which we must all recognize and which we all appreciate. Its good work has been two-fold: It has formulated and disseminated rules and regulations among physicians, aided and assisted in gaining effective legislation, aided and encouraged the formation of county health societies, with a view to a more thorough co-operation and a better understanding of matters relating to sanitation and public

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health by local health boards, thus rendering them able to do better and more effective public service.

It has printed and disseminated among physicians and people such rules and regulations as would aid the general public in a proper understanding of these matters; this has had a tendency to educate the public to a proper appreciation of health boards and their work, as well as materially lessening the number of cases of contagious and infectious diseases, and in order that health boards and general sanitation shall be productive of good results there must be a co-operation on the part of the general and individual public with health boards. That there has not been this co-operation on the part of the public in many instances is only too well known; that this lack or negligence is so pronounced is due rather to their ignorance of the necessities and importance of such work than to any other cause. It is this that confronts us when we ask legislation tending in this direction, and while it is true that statutes enacted unless wanted and understood by the intelligent people of this State are practically of no value, yet so long as man remains as he is, it is necessary for the grearest good, that he should submit to personal inconvenience and in order that the public may have adequate protection it is necessary that we should have certain statutory enactments. These to a certain extent have been secured, through the efforts of the medical profession of this State and the State Board of Health. It is necessary that this work should be educational as well as legislative, although in a careful consideration of the problem of public health we must come to this conclusion, that the State has the right, and this right should be exercised through properly appointed offi-

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cers, to make and enforce not only inspections but rules and regulations covering all points of public general health.

Now, how shall we best promote this work? In nearly all towns in the State we have local health officers, and these men do not find, as a rule, their work especially agreeable or profitable. It requires combinations of qualifications, of which diplomacy is not the least, and good judgment is an essential, to be a successful health officer; these same qualifications would speedily make him eminent in any other calling or profession. He finds in his work that many and conflicting interests are at work and at stake, which it is essential and necessary that he should harmonize and adjust, while he is often met with ignorance and superstition. Yet these will be the least of his troubles. Local pride and professional jealousy, neighborly influence and the question of expense must be met. And while it is assuredly not good policy to countenance extravagance and waste, it is equally as bad or worse not to use proper and needed methods of public safety on the score of expense. It is also necessary that there should be a hearty co-operation on the part of the profession that good and efficient work on the part of the health officer may be accomplished.

When epidemics of contagious disease arise and the question of quarantine comes up with all its attendant discomforts, and efforts are being put forth to protect the general public from the spread of the disease, there is no room for personal differences, but all animosities should be buried, and all should work with one accord that the greatest good to the greatest number may be accomplished. And to this end the public must be educated and familiarized with plain sanitary laws. On

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the other hand, the State or local municipality when dealing with the individual finds it necessary, either to destroy property, restrict intercourse or in any way to deprive him of his usual means of support and thereby cause him additional expense. This expense and destruction of property being solely for the public good, it is no more than just that the public should be compelled either through the state or municipality to bear the individual's expense so long as it is for the protection of the general public, as it is manifestly unjust to require the individual to sacrifice personal and property rights at the order of the State without due compensation. And as at present our sanitary inspectors are the local health officers of public schools, public charities, reformatories and penal institutions and are called upon to exercise supervision of burials and cemeteries, trades and some occupations, therefore I would suggest that our public schools should receive more of our attention. Our schools should ever be our pride and care, and as the State assumes the supervision of the education of our youth, prescribes the age of attendance, kind and manner of instruction to be given, so should it see to it that the young will, under their care, at the most impressionable period of their lives, be surrounded by the necessary safeguards to their physical and moral well being. A child, if properly taught the rudiments of sanitation, will never forget them. By this means we would have a generation growing up among us who would be properly fitted to deal intelligently with the problem of public health. The inspection of a school room is of prime importance, but it is of more importance that school rooms should be built from plans embodying sanitary principles. And if we would have sound minds and bodies we must raise

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them from good surroundings. There is a matter which we believe should receive immediate and prompt attention. We know that many people suffer from defective vision, but we would be much surprised did we know how many children of school age have serious visual defects which can and should be remedied. This matter is one of the utmost importance and one which it is easy to remedy. Proper test cards for the detection of defective vision should be placed in every school room; teachers should receive sufficient instruction from the health officer in the use of these test cards to enable them to examine pupils on their entrance to school to determine with sufficient accuracy any marked deviation from the standard of normal vision. Should such defect be found the teacher should report this scholar to the proper authority as defective in vision. This authority should have power to insist and, if necessary, pay for the proper correction of the vision and the necessary lenses to remedy the defect.

We should have a sanitary commission, with power to furnish plans and specifications of all public buildings, of all water supplies as well as sewers, and the disposal of refuse and waste matters and no private building should be allowed to be erected without the plans having first been submitted to such sanitary committee. Finally let us ever remember that public health is public wealth.

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INDEX.

Address on Medicine..... 126
Attendance, Annual Meeting..... 24
Breast, Tumors of the..... 42
Breast, Carcinoma of the Female..... 58
Constitution and By Laws..... 196
Davis, B. W. Obituary of..... 194
Diphtheria and Croup Cases, Modern Management of..... 82
Electro-Therapeutics..... 28
Higher Medical Education..... 185
Lane, Geo. E., Obituary of..... 192
Medical Laws of Vermont..... 213
Members, List of..... 203
Officers, 1897 and '98..... 2
Osteitis Deformans..... 180
Paranoia..... 164
Post Climacteric Hemorrhages, Significance of..... 155
Presidents, List of..... 211
Public Health..... 216
Report of Committee on Necrology..... 21
Report of Delegates to Dartmouth..... 21
Report of Delegates to U. V. M..... 8
Report of Delegate to British Medical Association..... 11
Report of Legislative Committee..... 19
Report of Secretary..... 6
Scorbutus, Infantile..... 141
Uterine Curette in the Country..... 116
Uterus, Cancer of..... 148

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